University of Alberta

BALANCED RESEARCH:
UNDERSTANDING AN INDIGENOUS PARADIGM

by

Alice Keewatin

A thesis submitted to the Faculty of Graduate Studies and Research in partial fulfillment of the requirements for the Degree of
Doctor of Philosophy

in

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To Making the World a Better Place

All my Relations

Abstract

The purpose of this study is to investigate balanced research through understanding an Indigenous paradigm. This study began by following the scientific method housed in the western worldview. It sought to gain the views of First Nations graduate students as they worked toward defining an Indigenous methodology. While gaining the views of the graduate students, the researcher experienced the process of conducting research within an Indigenous paradigm. This led to an understanding of the implications of the scientific method on the findings of research and on our way of being as a whole.

This work reviews the origins of modern science and how it has become part of our western culture. It also illuminates recent findings in pure science that support the views that are found in the traditional knowledge systems of Indigenous people. It provides a rationale for making a shift in our thinking away from science, as a way of being, toward balance in our interaction with all of creation. Guiding principles for balance are established from the words of Indigenous scholars and the First Nations graduate students. As well, a framework for conducting research within balance is proposed.

This work is not complete and cannot be defined by one person alone. The ideas are meant as a framework for others to build upon. Making a shift in our way of being, so that we live in balance with all of the realms of the world around us rather than dominating those realms, will allow us to be open

to the knowledge needed to survive on this planet. The traditional knowledge systems of Indigenous people may hold the key to that survival.

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The late Lionel Kinunnwa's living words continue to provide wisdom for me as I walk the path of life, I am deeply honoured by his gift.

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We shall not cease from exploration
And the end of all our exploring
Will be to arrive where we started
and know the place for the first time.
T.S. Eliot

I am an adventurer by nature, and I have come to the top of a hill in my journey. Though I have crossed many foothills in the past, I have finally reached a vantage point where I can look back and see how the experiences in my life have all been connected. I see myself as a child, riding camels in Morocco, touring in a jeep through the back roads of Mexico, visiting churches, mosques and temples and sitting quietly while respecting the traditions of other people. Later in my life, my own travels found me crossing South Africa in a semi-truck, climbing to the summit of Mt. Kilimanjaro with local guides, playing with children on the steps of the Taj Mahal and being submerged on a snow mobile in the first layer of spring ice water during an ice fishing trip with the Chief of the reserve where I was teaching.

As I gaze back over my path I see the people and their cultures and the respect that my family taught me so that I could be welcomed wherever I journeyed. I also see how my thinking was strengthened as I became aware of other worldviews, and as I integrated them into my own way of being.

As I stand on this hill and look forward, I see my path crossing mountains and moving through valleys where it disappears, and up shear rock faces where it emerges on distant peaks. As I pause to breathe in the mountain air, I glance back and realize that I had to forge my path up to this point. I look forward again, and wonder how a path can exist in a place where I have not yet been. A moment of clarity comes, as it only can in a place of peace and nature, I understand that the future is not a path, but a purpose. My insight into worldviews is a gift, and it is my responsibility to explore my experiences so that the knowledge may be shared to help others.

(Research Proposal, 1999, p.1)

As I reread my words in the research proposal I was struck by how accurately they described the process of the research I experienced, even though my thinking has changed greatly.

The most difficult part of this research will be communicating the process I experienced during the research. I set out as I had planned, exploring a framework for Indigenous research, but the journey took me to unexpected places and views that I did not know existed. Perhaps the best way for others to understand this journey and the research is to take a similar route and follow my story. A story of a journey allows the reader to come to some of their own conclusions and feel for certain situations, which will bring meaning and deeper understanding to the text.

THE RESEARCHER'S STORY (WHERE ARE YOU FROM?)

The respect for others

I am a child of two traveling teachers. I spent my childhood learning by experiencing different places and meeting the people who lived there. The places were not always exotic, as we spent all of our summers at a lake situated on some farmland in northwestern Manitoba. We would pack up on the last day of school and return to Winnipeg the night before school resumed. It was the area my Father grew up in and we would visit my grandparents' homestead, the farms and local towns. Both of my parents are of Ukrainian heritage and we learned much of our culture from these local people and my extended family. We also took a trip every summer with the six of us packed into a station wagon. We took the back roads and had geography lessons along the way. When we were fortunate to visit some far off destinations, our approach could best be summed up by my Father's words, "we are here to learn about the people and experience how they live, not to sit on some beach".

The box of culture

As it turned out, the four children in my family all became travelers, although I was the only one to keep up the education tradition. I learned much about culture as I backpacked through India, Asia, Africa and Australia. I remember taking a ferry on the Yangtse River in China for five days and being the only one on the boat to speak English. I had time to watch others and think as I played with the children and laughed with their parents. I thought about how our culture would misconstrue the good health habits of my shipmates as they rose early to begin clearing the phlegm and mucus from the bottom of their lungs over the side of the ship. Later a young man from Beijing put it in perspective for me when he described how repulsed he and his friends were to watch Americans (including Canadians) blow their noses into a hanky or tissue, then put it into their pockets and save it. Being alone in my culture while those around me were practicing theirs allowed me to feel the parameters of culture. I felt the box and the narrowness of its view, but when I communicated with the people on the boat we were able to transcend culture. We relied on our humanness to interact with one another, an experience I encountered many times when I traveled and one that kept me safe. That common bond, which I believe extends to animals, plants and the earth is integral to this research.

The power of culture

My travels also included lessons that allowed me to feel the differences in power that exist between cultures. While in South Africa, I caught a ride in a semi-truck that was driven by a colored (a term common in South Africa) man. Traveling with us was a black man (also a common term to South Africa). The colored man was hesitant to speak to me at first, but soon we started talking and visiting. The black man would not speak even though I tried to address him and bring him into conversation. I finally sensed he was uncomfortable and gave up.

At one point the colored man had to leave the truck to attend to a highway check stop. The black man then started to speak and ask me questions. We talked for quite awhile and he was mid-sentence when the colored man opened the door to return. The black man stopped speaking and

would not look at me. I quickly learned the rules and did not speak to him unless the colored man was gone. When we entered Capetown, our destination, it was late and we drove to a truck depot.

The white man who owned the truck was there to meet us. Although the colored man had made most of the conversation on the long trip and we had become to know each other's families and shared many stories and laughs, I was not prepared for the lesson I was about to receive. The white owner was not much older than I at the time (late twenties) while the colored man was probably in his fifties and the black man in his thirties. When the white man opened the door he looked at me disapprovingly and then asked the driver (the colored man) a question about the trip. The colored man had his head bowed and answered with "yes boss". I was shocked with disbelief because it was so contrary to the personality I had come to know. As the driver and owner checked the truck the only words from the colored man were "yes boss", the black man became virtually invisible and I was ignored standing there with my pack. The owner had a white pick-up truck and the only words he said to me were to get in the front. The other two men crawled in the back and we traveled in silence.

We came to the very poor part of town where the colored man jumped out with a "bye" from the owner. I tried to wave in silence, but he had his eyes down. Then we entered the townships and I could tell the white driver was very agitated. We drove fast through the shanty metal and cardboard homes and barely stopped when the black man slid off without a word. When we finally reached a well lit, white part of town the driver began to speak to me. He told me how we shouldn't be in that part of town at night, then asked where I was from and talked of his family. I had felt some resentment toward this man when we first met because of my cultural view, but when I realized he was also bound by culture, yet he was good to the men who worked for him and he cared about their well being, my feelings changed. I became aware of the power that culture holds and how it is an entity unto itself. I am sure those men connected on an individual basis as we had, but culture controlled all of our behaviour. I

understand how the rifts perpetuate in our society and how the power of culture plays a significant role. This research is about culture's power.

Eyes wide shut

My involvement with the Native people of Canada began in university during my undergraduate studies. In a multicultural course, there was one section that explored the education of Native people in Canada and it touched on the history and the residential school experience. I remember being amazed that I was a citizen of Canada in my twenties and I had not heard of any of the issues facing Native people. Nowhere in my schooling, my lessons from home or my experience had I learned about the treatment of Native people, which I felt paralleled what I had seen in Africa. Was I someone who was oblivious to my environment, or was I a typical Canadian?

Understanding worldviews

I began to inform myself and as fate would have it, my first teaching job was on a reserve in northern Ontario. To be truthful, this was one of the most challenging experiences in my life and one of the most valuable. I remember in the first month daydreaming about how I could just pack up my belongings and drive away and how I wished that I would allow myself to quit. It was so difficult because I moved from being an observer of different cultures where I gained understanding through awareness to actually having to ignore my lifelong perspective to experience another's. In other words, I had to move from understanding in my mind to understanding in my heart. This was when I began my life lessons in worldviews, paradigms, epistemologies and ways of being. I have since learned that the heart must shift before the mind can understand.

I was fortunate that my grade nine students chose to teach me a lesson in understanding worldviews. As a non-Native first year teacher I had come mid-year to the class with the task of having the students graduated and ready for high school by June.

My lessons began the day I arrived. The students began with a test. They called me every name in the book and graded me on my reaction. I suggested that if they wanted to continue using obscenities they should leave.

They all left. I learned that the discipline techniques I had brought from my own upbringing and the university were not effective. For the few who returned, the chaos escalated for the next month until classroom furniture was being hurled my way. I was a slow learner.

I taught in the section of the school with grades six through nine, which I shared with two other teachers who were Native. Their classroom doors were always open and their students were quiet and working. The elementary section of the school was taught by six non-Native teachers and the same chaos that occurred in my class was apparent there, although more controlled. As I observed the elementary teachers, the vision of round children being forced into square holes came to mind. I recognized that I was the catalyst for the chaos in the high school section and that I had better learn the lessons from my students quickly before we all failed.

I had no idea how to make the situation better. I spent every night at the school planning and revising work and trying as hard as possible in my non-Native way to create success for my students.

By chance, I made friends with the teacher assistant in the kindergarten room who was from the community. I met her family, we went to all the community gatherings and there I had fun with my students and their families. As I became more immersed in the community I became more aware of the cultural patterns.

I was fortunate to be included in ceremonies with my friend's family. I would learn without speaking as those around me did. After, my friend would tell me stories about her childhood and the reasons for the ceremonies and what we needed to do around or during the ceremonies and why. I learned my role as one of the sisters. (It is important here to note that it is not my place to discuss ceremonies, but the Elders have said I can discuss my learning). I never thought to question what I had learned, it made sense even though I had little evidence of its reality at the time. As I looked around the community it explained situations that seemed against reason from a non-Native perspective. I began to understand the actions of my students in a different light.

I would like to say that I slipped on my newfound worldview, however thin, to help my students, but I know that wasn't true. The school environment is one of the most difficult places to bring out my other worldview. Even today, as a university instructor with much more experience in the Native worldview, I find that the structure by which the non-Native world gains or builds upon knowledge does not allow for alternative points of view.

Instead, the success that my students and I enjoyed was because my students taught me respect. They showed me how to respect them, so that they could respect me. The more I learned about the culture of the community, the more I realized how little I knew. My friends have since asked me to come back and be the principal at the school where I used to teach because they say I understand them, but I have declined. I only understand that until I am able to help those children gain knowledge from the non-Native worldview without denying or eliminating their own, I will be part of the problem rather than part of the solution.

Trying on another worldview

I was aware that worldviews existed and I had seen them from the outside. I could try to understand the actions of a person from another culture because of the worldview they wore, but the reserve community provided my first opportunity to try on another worldview.

One day, as I stood within the community and looked at the school, I saw two different worlds existing in the same physical space, but having no communication between them. I saw a seven-year-old boy who was full of laughter with his family. His aunts and uncles would tease him, and his grandmother would ask him about school and he would say that he was doing well, and she would smile proudly. He was the same boy I saw in grade one who was always quiet and never smiled. He would cry when he couldn't read.

The emergence of the white pickets

The day I stood in the community with my friends and looked back into the school, is the day I began my life on the picket fence. For the first time I felt my responsibility. Taking the risk to wear another worldview and have some of it

permeate your being implies that you will take the responsibility for wearing that view and sometimes feel the burden of its presence.

I have tried many times to get off that fence. When I am on the side with my Native friends or family or teaching in a room of Native students I can feel comfortable, except for the cultural lessons I need to continue learning through our laughter. But, if I am in a group of Native people whom I don't know or in a mix of Native and non-Native people where I am asked for an opinion on culture, I feel those pickets like razor blades. I know that the place where my words come from is not informed like those who have lived the culture and I have no desire to pretend that they are. I have also tried to get off the fence on the non-Native side. I have told myself it is not my place and have tried to avoid situations where I would have to be in both cultures. The harder I tried, the higher the picket fence grew. My experiences led to meeting more friends who are Tahltan, Ojibway and Cree. Inevitably, I met my husband, who is Cree, and his family, who are a great source of laughter and have a wealth of knowledge in cultural and traditional ways.

The worldview barriers

I continued to travel and found myself on a reserve just outside of Calgary, teaching adult upgrading. It was during this time that I began my M.A. at the University of Calgary. I recognized the enormous gap that existed between the students graduating on the reserve and their success at university. I interviewed students at the university's Native Centre to help determine the barriers that existed for them as they came to study in Calgary. The students consistently pointed to the barriers created by the differences between the values of their culture and worldview and those emphasized by the university or city system. The acknowledgment of worldviews and my passion to have them recognized as equals in our education system was another factor leading me toward this research.

Ways of knowing

Through course work in International and Intercultural Studies at the University of Alberta, I recognized the depth of the worldview dichotomy and I

began to focus on knowledge systems. My husband's family lives a knowledge system that is different from that of the dominant culture, and I have been fortunate to become familiar with their ways of knowing. This story demonstrates the strength of realizing different ways of gathering knowledge.

Picking Medicine

One summer day my mother-in-law called and asked my three boys and I to come with her to pick medicine. We stopped to pick her up and then continued to drive for three hours north. Although I wasn't sure of where we were going, my mother-in–law had a sense of the place that we needed to find.

As we parked the van on a gravel road not far from a lake, my mother-in-law said we should walk up a certain cut line. As we were walking she began to start talking about where we were going. She said a woman, a relative, had come to her with tobacco asking for help with her cancer. My mother-in-law explained that as a keeper of medicines it is her obligation to help anyone who asks in a respectful way because she has been given that gift. She said that she was unsure of the ingredients for the medicine, so she prayed and asked the grandfathers to show her which plants to use and where to find them. She told us about her dream, where she was shown a general area that she knew and then a specific place where the plant could be found. A person in her dream showed her exactly which plant and how to pick it.

My mother-in-law would pause as we walked, and then lead us over streams and beaver dams until we seemed to be coming back in the same direction that we started. Then she stopped and pointed to a grove of trees about fifty feet away; she said that we should find the plant under the bush in those trees. When we got to the trees it took some searching as the plant was close to the ground, but we found it. My mother-in-law respectfully left tobacco before we began to pick the medicine and she always knew where to find more when we had finished picking an area.

Our relative was in the last stages of cancer and the doctors had given up on her, but the medicine made her life bearable and kept her with us for more

than a year. My mother-in-law knows others who have been cured by that medicine.

This story written with the permission of my mother-in-law, Margaret Keewatin

This research began with the study of how to gain knowledge within an Indigenous system.

THE PLAN BEFORE THE RESEARCH

During a class instructed by Lionel Kinunnwa, a Lakota-speaking Minnecujo, on Revitalizing Indigenous Languages (1997), and The 1995 Indigenous Scholars' Conference, the need for an Indigenous Methodology was repeated many times, as the current systems did not accommodate the worldview or ways of knowing employed by Native people. As Hampton (1993) notes, a uniform theory does not exist in Native education, although there is a need for one to "organize research, guide practice, and serve as an explicit aid to discussion and clarification." He also states that, "This lack of theory compels researchers to import hypotheses from other areas or to approach Indian educational research in a piecemeal, disorganized fashion." (p. 271)

Every time I encountered a discussion of the need for an Indigenous Research Methodology I would become excited and every cell in my body would tell me that I should be studying this. Then I would look around the room at all the Native scholars who knew so much more than I and who lived the culture each day and I could feel the pickets turning to razor blades. I would remind myself that this was not my place. A voice would always try a final argument that this research would be good for all people and its time had come. I would ignore it and walk away to try to find another area to study. My efforts were futile, I would always be pulled back to the same question with thoughts of those round children being fit into square holes. I decided to follow my intuition and take the path my mind and body told me to take even though my reason let me know it was the most uncomfortable place I could be. This research is about

following my path, being willing to endure the pain I found there, and trusting the process until the learning became clear.

As stated in my proposal, I sought to explore an Indigenous methodology from an ideological standpoint that would look at the entire methodology rather than merely choosing pieces to integrate into an inquiry method. My intent was to build on the findings of other Indigenous researchers to work toward establishing a framework for inquiry. I also believed that it was not my place to define a methodology for Native people since such an endeavor must come from a collective effort.

The research was to focus on three questions:

1. How can people gain an understanding of another worldview and learn through that view while respecting their own?
2. Is there a framework for Indigenous research and if there is, what is it?
3. How do Native people who are interested in research perceive this framework?

The first question was to be answered through maintaining a journal of my growth during the research. Questions two and three were to be answered through observations of a course taught by Eber Hampton in the spring of 1999 at the University of Alberta. This course, "Exploring Indigenous Methodologies", was for students in the First Nations graduate program and other interested graduate students.

Students in the course were approached as participants based on a number of assumptions:

1. that they would have an interest in exploring an Indigenous paradigm for research since they were taking a course by that title.
2. that they would have knowledge of the Native paradigm since they were in the First Nations graduate program.
3. that the non-Native students were interested in the research because of their course choice and that they would be open to learning from a Native perspective.

4. that the research would serve the needs of this community of students since they required a methodology for their own research as graduate students which was congruent with the people with whom they would work in their communities.

It is worthwhile stating my intention at the time.

> It is my intention to approach Dr. Hampton with the help of Dr. Wilson, a director of the First Nations Graduate Program, to present a framework for Native research and to ask if it would be worthwhile to have his class explore and build upon it. If he agrees, I will then ask the students in the course the same question. If they agree, I will ask to present the framework at the beginning of the course. I will then attend the class to take notes and observe their input and also participate. At the end of the course, I will conduct a talking circle as outlined. When the data are reduced and themes are organized they will be presented back to the group for feedback and verification.
> What if they don't agree to this study? Then I will try to compromise to suit their needs. If they still don't agree, then I will determine another group that I can approach to explore a Native paradigm.
> (Research Proposal, 1999, p.34)

I see that I had not understood the art of conducting research with humility at the time. Fortunately this research helped me with that skill.

THE RESEARCH EXPERIENCE (THE CLASSROOM)

On the first day of the "Exploring Indigenous Methodologies" course I went to Dr. Eber Hampton's office early to meet with him. I had sent him my proposal and had tried many times to contact him, but he was unavailable. I was worried that I hadn't prepared for the research as I should have, but I knew things don't always go as planned.

Dr. Hampton was not expecting me and was preparing for the class when I arrived. He invited me in and I explained that I was the graduate student who had sent him the proposal. He said nothing about the proposal, but invited me to sit down. I have to admit that I was a bit in awe of Dr. Hampton as I had

heard others speak of him, seen him lecture at a conference, knew of his Harvard studies, and was familiar with his "Towards a Redefinition of Indian Education" article. Further adding to my apprehension was the fact that I was a non-Native student asking a Native scholar if I could write about an Indigenous methodology.

My next step is what I believe to be the most important factor in conducting this research and gaining the knowledge that I did. I presented Dr. Hampton with tobacco and gifts of medicine that my husband had prepared, and asked him to help me with my research. Dr. Hampton accepted my gifts and said he would help me. At that moment I felt I was in the right place at the right time.

I had no idea at the time what that help would entail and I am sure Dr. Hampton is still unaware of how his guidance brought me knowledge. The process of my learning began immediately. I never presented him with a framework for Indigenous research to ask if it would be worthwhile to have his class explore and build upon it. We never planned how I would conduct my research or what role I would have in the classroom. Out of respect I waited for his guidance. The only comment he made was that I should participate in the class. I agreed and began trusting the process, even though the scientific part of me was becoming quite worried. (Personal Journal, 2000, p. 15)

Before I continue to explain the process that the research followed I must caution the reader as to my intent. This is one time that the written word is not adequate. I need to have you feel my emotion and see my tears, and I need to feel your understanding because it is through the emotion that I gained the knowledge. If there was any way to leave out the explanation of what took place for me in the classroom while doing the research I would. Not because I had to feel uncomfortable, but because I fear a misunderstanding of the process. I have had this understanding in retrospect of the learning, even though I can usually live in a process way trusting the learning that life brings, my need to follow a scientific method in order to do the research right caused me great distress at the time.

I believe that the moment I asked Dr. Hampton for help in my research in a traditional way, I included spirit in my work. When this occurred, I opened myself to the learning that I was to acquire according to my purpose in life. My research was the vehicle, but the learning could come in ways that do not follow a research plan. Dr. Hampton's way of helping and the students' responses to me let me feel the emotions that brought me to a higher level of learning and understanding. Dr. Hampton and the students were attending the class, unaware of my strife, while my version of their actions caused me great pain. I accept that they were just teaching me and I am grateful for their gift of knowledge.

A misunderstanding can occur as I tell my version of the experience to help the reader understand my level of emotion. It is not my intent to portray Dr. Hampton or the students in a negative way. I understand the importance of words. In a Native way, Elder Lionel Kinunnwa tells us, "You must know where the words came from and who is saying them. Words are sacred and they can be helpful or hurtful. We are more sacred than what we hear." (Kinunnwa, personal communication, 1997)

In a non-Native way, misunderstandings can happen when words do not follow the writer's intent and are quoted out of context. I will, however, continue to trust the process and know that the reader is responsible for their own learning.

Thus began my struggle between a "scientific" and a "non-scientific" way of conducting research. Let me clarify. The Indigenous way is only non-scientific as western science defines it, not in terms of not having science.

I can now identify the struggle using science as the basis for my research because of insight I learned further along the way. Explaining this dichotomy at the beginning makes understanding easier for the reader; however, it was not clear to me at the time and it was very stressful to encounter. During the first class, I sat at a table set in a circular formation with the students. There were ten Native students, mostly from the University's First Nations Graduate Program, and one non-Native student. Dr. Hampton came in and introduced

himself, but he did not acknowledge me or introduce me to the class. Feeling out of place as a non-Native researcher, I had hoped his endorsement would some how legitimize my position and help me fit in. That endorsement would never come. This was my first lesson in non-scientific research which will be explained later in the paper.

Instead, he asked us to introduce ourselves and we went around the circle speaking one at a time. Even though most in the room were familiar with the process, Dr. Hampton explained that, unless we were discussing openly, he would like us to share like we were in a talking circle, in which only one person would speak without interruptions and the rest of the class would listen in respect so we would be able to hear them with our emotions.

I introduced myself and explained that I hoped to record the class discussions and organize the themes to help the class determine an Indigenous Research Methodology. I said I would present the findings to the class so they could verify the themes and rework the ideas to reach consensus. At that time I asked if it would be appropriate to use a tape recorder. The answer was "no". One student asked me if I would be participating too. I said that I would, but I would mostly be recording notes. The faces around the table spoke clearly and they indicated that I just received my second lesson, one I should have already learned. No comment from Dr. Hampton.

About that time I was wishing I was a fly on the wall. I had assumed that I would be helpful and that organizing the ideas for the class would be useful to the students in their own graduate work. I thought I could build a relationship with them as the class progressed. I had noted the importance of this relationship in my proposal but now felt I was building walls instead of relationships. Those pickets began to rise and I was exactly in the place I had wanted to avoid.

The most uncomfortable part was that I knew I was making mistakes because I had built many relationships with my Native friends and their families. Yet the research plan loomed over me. I had already stated my research intentions in the proposal and changing them now would mean another

proposal. How could I remain true to the scientific method when my participants followed different methods?

I gave myself a pep talk and told myself everything would work out fine. I mustered the courage to hand out the consent forms that needed to be signed and placed them on the student's desks for when they returned from the break. I thought there would be some understanding since these were all graduate students who had to go through the same ethics committee to get approval for their research and who would have to get consent from their participants. I was wrong. Two students willingly read and signed the forms and gave them back to me, the others put them in their bags. (Personal Journal, 2000, p.17)

The consent form issue dragged on through the first week and into the second. The course was only three weeks long since it was during spring session. I worried that I shouldn't be recording students' comments if I did not have their consent. I gently urged the return of the forms and finally had all but two. When I asked these students specifically, I was told the following: "my people do not get consent this way" and "I already told you you had my consent, for us the verbal means more than the written". I agreed with them, but from the shoes of the researcher I had to be on the side of science. I was to learn my third lesson. (Personal Journal, 2000, p. 25)

During most of the classes I sat quietly, taking notes and speaking during my turn. I tried to remain invisible, not because I was trying to be an objective researcher, but because I felt so uncomfortable. There was something very unwelcoming about the atmosphere. I had been in other classes with Native instructors and predominantly Native students, and had felt very comfortable. The other non-Native student in the class approached me to say that she felt the same disturbing feeling, even though she had lived with families on the reserve, was very open to the issues facing Native people, and was an advocate for their rights, as I was for the students and my own family. I told her that it was an excellent opportunity for us to feel what it was like for the Native students in schools or other university classes. I suggested that they must feel this unwelcome for most of their schooling. It was good for us to feel this, remember

it, and learn from it. I truly believed what I said, but I couldn't help feeling the pain of non-acceptance.

I decided to organize some of the class's ideas on Indigenous Methodologies since that is what my research plan said I would do. To be fair, the class was fascinating and I was learning much about Indigenous Methodologies and, although I was able to relate them to my own experience, I still could not let go of the scientific method and trust in applying them to my research. Fortunately the students and Dr. Hampton would not let me waiver.

I met with Dr. Hampton to ask if I could brainstorm some ideas about Indigenous Research during the next class to find some common themes. He didn't say no, but he didn't really approve either. Instead he asked me a question about my research that he had spoken about in class. He said, "what is your earliest memory around what you are researching?" I first thought, "what does this have to do with what I am asking you?" Then I trusted his guidance, relaxed and saw myself standing at our lake. He then asked, "what is there that you are feeling?" I had an overwhelming sense of peace and I told him "balance". The word and the feeling of balance turned out to be the most important thing I gained from the research experience. At the time I felt I had failed again, what could balance have to do with the research I was doing? I felt so uncomfortable and so unbalanced that I was getting confused. My only question was, "is it okay if I have some class time tomorrow?" and he said, "yes". (Personal Journal, 2000, p. 27)

The next day I was almost forgotten, but a space was made for me. I asked the students to brainstorm words and ideas that best described an Indigenous Methodology for them. At first there were no responses, but eventually I could almost fill the board. I said I would put similar themes together so major components of an Indigenous Methodology could be identified and I would have it ready for them to discuss the next day.

I came in early to write the themes on the board before the students arrived. During class, Dr. Hampton reluctantly gave me some time. Somehow the session turned into a personal attack by a few students, clearly showing that

I was on the wrong path. I just sat down. It must have been bad because one student had to defend me, and for the first time Dr. Hampton acknowledged me in class by coming in early from the break to ask if I was okay.

I wasn't okay at the time. I had to function long enough to pick my children up from school and drive home. As I watched them run into the house I couldn't move. I sat in the van and cried. Finally my husband came to help me in. I felt like I was split in two. The expectations of the scientific paradigm that I had lived as part of my culture and was using to conduct research chafed against the non–scientific paradigm lived by the research participants that I understood, but felt isolated from in the classroom. Later that night I was still dazed, but came to talk to my husband. He had been very supportive, but finally looked at me and said, "you can't expect to gain knowledge without suffering". From a traditional standpoint he was right. This was my fourth lesson and the point at which I finally let go and trusted the process. (Personal Journal, 2000, p. 30)

The next day was a Monday. I asked for the students' permission to do research along with them the proper way. First, I asked Dr. Hampton if I could have the class stand in a circle and hold hands because I wanted to share something with them. He was very reluctant, which was understandable after what had happened the last time I took control. I told the students who I was and where I came from. Then, I offered tobacco to each one of them to ask permission for the words they had shared and I promised that any analysis of the notes from the class would be about my own personal journey and that I would not speak about theirs. (Personal Journey, 2000, p.31)

The research process became much less stressful once I began to conduct it from a non-scientific paradigm. The research became much more balanced once it meshed with the same paradigm as those who participated. It is interesting that my personal experience would seem to shed very little light on the workings of an Indigenous research methodology. However, if the focus were to shift onto process, I believe that each of my experiences could speak of an Indigenous methodology.

Introducing Lionel

Although this seems like an unlikely spot, it is time to introduce Lionel. There was much confusion for me as I navigated the experience of this research. Nothing seemed to work out as I had planned and although I knew that I should abandon my attempt, I felt that there was something greater that I needed to learn. What guided me through the confusion were words that I had heard in a course the summer before. The words were distant, but the more I thought about my experience, and how it didn't make sense in my way of knowing, the clearer the words became. The speaker of those words was Lionel Kinunnwa.

I wasn't sure what to expect when I walked into the summer course, "Revitalizing Indigenous Languages", taught by Elder Lionel Kinunnwa. I remember walking past Lionel as he nodded acknowledgement to each one of us as we entered the classroom and made us feel welcome and worthwhile, as Elders do. His presence felt of two worlds and the last thing I remember was turning my head toward Lionel as he began to speak. It was three hours later when I finally moved, and my neck was kinked in his direction.

The pattern continued for the remainder of the course as Lionel spoke of topics, some of which I had never considered and some of which I had never known. He had a gift for melding all types of information from ancient wisdom and traditional knowledge to the latest scientific findings. His speaking would make many circles, each time making broader sweeps of knowledge, but coming to the same conclusions. Sometimes these circles would take hours or days. It was an amazing experience in comprehension. It wasn't just the knowledge he had to share, but the process by which he shared it. All the while he would bridge gaps for us. He would teach us as an Elder while teaching us how Elders teach. He would teach us how to respectfully learn from an Elder, unlike our university training, while expecting us to balance both ways. There were times when I could actually feel my mind expand as I thought in ways and about information that was new to me. He allowed me to transcend my

culturally taught ways of gathering knowledge. Even though I had had the experience of learning through ways of knowing he went one step further to actually explain through energies how that knowing occurred and how it related to the scientific way of thinking. I could have listened to him for three hours a day for the rest of my life and I can't think of any other teacher that I could say that about.

I learned in his class as Lionel described, "Saturation of the mind with Elder's words needs to happen so thinking happens and ideas grow". I also took Lionel's advice in that, "It is each person's responsibility to reach up and take the resources that others and Elders throw up and circle around you." Each day since that class I have learned from Lionel's words. Much of the thinking about this research and the path that I followed toward balance came from the resources Lionel circled around me. I credit Lionel's words for this knowledge, but I think he would say that this knowledge is not new, but ancient and that it is greater than both of us.

Lionel was a Lakota Sioux from Oglala, as he told us each morning, and he has since passed away. I miss him and at first I lamented that all of his knowledge was gone, but then I remembered his words, "there are balls of energy that Elders have left behind. You find the knowledge as you walk in Nature. You know things, but don't know how you know."

I have included some of Lionel's words from the class because I am hoping they will serve as a resource for the reader in their journey and I refer to them in this work. The headings and the organization of the comments are my own. The comments are very close to the words that were spoken, but they passed through me on their way to the paper and I am sure I have influenced them in some way. So, I will call them my version of Lionel's words as if I was remembering what he said to me in our conversation.

My Version of Lionel's Words

Elder's Knowledge

Importance of ancestors – Need one foot in past and one in present for balance.
If you stand with your feet together you can be pushed over.
It is disrespectful to give an answer about important subjects. Elders give you resources to formulate your own way in life.
Each person is sacred. Don't give a sacred person the answer. If your ego has the answer then you need to go and humble yourself.
It is each person's responsibility to reach up and take the resources that others and Elders throw up and circle around you.
Saturation of the mind with Elder's words needs to happen so thinking happens and ideas grow.
There are balls of energy that Elders have left behind. You find the knowledge as you walk in Nature. You know things, but don't know how you know.
Respecting Elders means that we respect time and all the wisdom that comes with time and all the ancestors.

Balanced Research

Reflective consciousness – all things are part of your life – sacredness of the grass etc.
Be sure the methodology comes from those who know. Build the structure and let the people put on the meat.
Need a meta language which creates its own structure to explain Indigenous concepts. Not translated into one language or another. So understanding will happen between all nations.
Language is not developed that will allow others to talk about a methodology from an Indigenous stand point.
Go to nature to experience the sacred balance of life.

Methodology

Includes the spiritual – a crossover place where the physical and spiritual interface. Language is a trigger to retain the spiritual power.
Most methodologies don't have a crossover place because universities are secular.
Need material to build. Materials like a language. The pieces of methodology need to be named – where do those names come from and why?
Need language that measures up to the standards of the society. The standards of the people and the institution's language shows how you measure or why did you call it that. Has to be a methodology that pertains to all people. (balanced)

Method
Must know how decisions are made – protocols. Must go on site and listen and talk and watch.
Traditionally minded people are in the 80/20 place with words - 80% spiritual / 20% physical.
Where was the psyche formulated at? Who built your being to relate to the world? Your band (the people) your language.

Ways of knowing – Language
All things – have a language – spiritual and physical.
The entire natural world is communicating with and through each other by mind
Indigenous languages are used to communicate, they contain history and knowledge. The words are exact and don't have two meanings like English. They cannot be used to be disrespectful to others – it is built in.
Literacy means to know the word and its other meanings contained in the syllables where history is held.
The repetition in Indigenous ways of teaching is powerful. You know what is important from how many times it is repeated without being told. How many times one thought connects to all others shows its importance.

Knowledge
You must give away your knowledge. When you give it away you are forced to connect to others and you get even more wisdom back. When you give enough away, then you truly become wise.
You must know where the words came from and who is saying them. Words are sacred and they can be helpful or hurtful. We are more sacred than what we hear.

Becoming a humble person
Don't give I statements – it is not important what I have done.
Don't give answers to someone because then they will be a production of yourself and they won't have the opportunity to reach their potential. Each generation should be better until the two leggeds reach their potential as a society and get to a better place. Also – your answer may be wrong.
Don't ask a question rather listen to people so you get a wider base. You will get other knowledge and sometimes what you hear may be more than what you were looking for with a question.
Give only pieces of analogy that allows others to create an entire thought.
There is always a fight with your ego. Ego gets you too up on your thinking and you believe you are the centre and that you make things work. Ego is good because it helps you laugh and doesn't let it get too serious and there must be a balance. Have to keep humble.
If you can't explain it, then you are not to talk about it. They are many ways to share.

Don't be too bold – If there is a sacred spot over there that you want to reach, you must be humble to crawl on your knees and pick the grass and roots by hand to get there.
Don't draw attention to yourself in public.
Do not open up a subject unless you are able to teach another person all about it. Don't speak about anything you don't know about. Better to take time when you go to other people (protocol) than presume that you know.
To feel Cree is to know the how and why of the sacred meaning of a word. Our thoughts must be a reflection of the process of the structure. We should not have a preconceived notion. When you put it on paper it becomes true. If you put it on paper don't do it with preconceived notion – go to the people and get the real meaning – not what you think.
If you are a non-Cree speaker, say the word and let it vibrate through your body before you know what the meaning is. It needs to resonate through your body.

Symbols
Everything is circular (trees, seasons, etc.) because energy turns in a circle. All sacred things are round or try to be round. Fits the way of thinking.

Purpose in Life
Purpose in life or reason for being comes from the people you came from. It used to be that the bands of people would hold knowledge. One band would take care of the knowledge for daytime things and another band would hold the knowledge for night time things.
Everything has a reason or a purpose.

Life
Life is a sacred ceremony – the way you live it is a ritual. If you live the wrong rituals, life will be hard. Ceremonies are the way you come into balance with the physical body, mind, emotions to make knowledge. If one is unbalanced you will feel sick. The balance of all three will give you a spiritual energy.

Culture
Is how we live and adapt to our physical lives.

Traditions
Are the ways and means to keep that culture strong in healthy ways. For instance having the wisdom to see the worth in real words and the living world of people. Sometimes words die right out of the mouth because they have no spirit. We are not obligated to listen to dead words of living people, but should listen to living words of dead people.
People who have problems with traditions only know the Western way of forming the psyche. Those who understand traditions use their language to connect them to their entire world. They know to speak respectfully or the animals will know.

Tradition is understanding the relationship between two things and how those things are related to something else. When you see how everything is connected you will reach the balance where you are ready to step to the next phase in the sacred hoop of life.
Tradition shows the connection of relationships. If you don't understand another person's world keep the traditions so that knowledge can't hurt people.
Have to go back to traditions because we don't know each other anymore.
Need to know the natural laws of all people around you (they bred the taboos of culture)
The traditions are from nature not from man. The two leggeds came after and had to learn to come into harmony with nature. It is our job to help others to come into harmony and balance by finding where the two leggeds belong in the natural world.
Elders have hard and strict rules because after thousands of years the answers have been found and worked out.
Elders know about atoms, sacred colors and spirit. They all talk about metaphysics and how energy moves.
Ceremonies carry the traditions since they are conducted the same way through time and bring with them the knowledge and understanding of metaphysics and biology.
The context of tradition is not yesterday; its purpose is to let you live in this day.

Words
Linear order (like English in dictionary) – words are in one way only
Multiphase (like in Native languages) – the words are interconnected to many things
Words are 1,000's of years old and they age over time. Inflection can add spiritual meaning.

Epistemology
In university programs everything is split into psychology, sociology, political science, anthropology etc. Indigenous knowledge includes all the areas together. When Indigenous knowledge is described in English it sounds like a religion and the university doesn't want to deal with religion because it is different from science.
Indigenous knowledge is a way of being rather than a practice of religion.
Things are natural and normal. There are not powers only for special people. If a person is good at it, it is because your skill may be better tuned than others and you gain a respect, but you are not holy. It is a way of seeing the world not a religion. Using energies has come under the parameters of spiritual. But for the non-Natives that word has been misinterpreted. It used to be understood since according to the Greeks it means breath – life.

Traditionalists
Traditionalists successfully manage their lives. They move from strength to strength and surviving circumstances that would demoralize others. Their value

system allows them to maintain a healthiness (balance). Ceremonial structure gives a healthy way of being (a way to rebalance).
For example, those who have been part of gangs who have lost respect for life take part in a bonding ceremony to life. The ceremony works regardless of ethnicity. When you are torn away from your people and put as an individual away from your group you feel isolated – identity crisis. Being affiliated with your own people you will be healthier; as you listen to your own language you maintain your health through hearing the vibrations of the language.
Traditional names of tribes mean "the people". But to be the people they had to know the way to live in harmony with the environment.

Protocol
Native people don't believe they have the right to control others with the use of their eyes. Therefore they look away.
Sometimes people coming into a community do things wrong from day one. Then one day they will do one small act and all the people will react against them and want to get rid of them.
To be accepted you have to go out and have tea, coffee and be there at mealtime. It is about timing or your humanness. If you are true you are accepted. You just naturally meet their protocol.
You must practice humility. There is an intertwining all over, the families are ranked by factors such as power, spirituality, hunting, government, etc. You cannot ask about this verbally, but must watch.
Protocol and etiquette are necessary for course work or if you are going to teach on a reserve. You can learn them from the students.
A breakdown in protocol can sometimes occur if a person is raised in the city away from their community ofrif alcohol is involved.
When there is a mix of bands at a meeting they are ranked and you have to go to a certain band first.
Non-Native people are not told what to do when they screw up and when the people can't stand it anymore they get rid of them. It is not their fault.
As non-Native teachers they want to help, but they violate the protocols. An orientation like one in Rupert Ross's Dancing With the Ghost would help and it would respect them. There are unspoken rules that must be followed.

Ceremonies
Ceremonies are an important way to reestablish yourself in a collective way.
Without ceremony (spiritual) you lose the ability to love self and to be human.
Ceremonies are for healing in some form or another. You must follow the basis of this way of life in order to be preventative.
Ceremonies are only good if the preparation is done. If boughs are not cut right and tied right etc. with meaning then the protocol of the sweat is violated. Then there may be bad experiences around it.
Ceremonies without preparation are rituals which are cultural novelty.

The sweat is the only time you get to see the world as the Great Spirit does. The clouds rise above the rocks. The rocks in the pit are like the centre of the universe.
Rituals are how you perform ceremonies and ceremonies are how you make connections to traditional ways of living.
Ceremonies are the pathways to the traditions and the rituals are the steps that get you there.
There is always a doorway that you arrive and leave from. This place must be kept very special.
There is a sacred key. If you lose the key the lock doesn't protect anymore it acts as a barrier. You can lose it many ways, but we are reminded that we are the sacred key as sacred beings. You realize as you work with the traditions etc, that you will come to a place where you realize that you are the key.

Interconnectedness
By following that all relationships are interconnected you can live in your grandmother's camp. All animals, the stars, the wind etc. do their roles and we understand those relationships. It is a way of being, not a cultural novelty.
If there was a basis for traditional healing it would be that relationships are made.
Traditional minded people do not practice any form of exclusion because it does not follow the interconnectedness of all things.
The conferences will one day go to the traditionalists so they too can speak.
We can't ever be bold enough to say that we are the protectors of mother earth. She will grieve us when we are gone from the poison air and the pollution we have created, but she will go on to take care of her other children.

Experience living life not looking for the meaning of it since that is useless. Live the traditions of our people which is the traditions of all people. We cannot declare an enemy. An enemy announces that, not us.

The Data

The data are comprised of the notes taken during the "Exploring Indigenous Methodologies" Course in the spring of 1999 at the University of Alberta. There were ten students in the course, nine of whom identified themselves as First Nations students.

The data represent the majority of the conversation that took place in the classroom, although there were times that I would not take notes out of respect

for the participants. When the students were sharing experiences that were very personal for them I would put down my pen.

The written comments are as close to those that were spoken as I could manage. I was taking notes upon the request of the students who asked that a recorder not be used. I worried about the validity and reliability of such a method since my ability to remain objective through note taking was almost impossible. But when I shifted the focus from the method and placed it upon the participants I began to understand the process.

The participants were given a copy of the data and asked to verify their own words. I suggested that they change or omit any comments that they were not comfortable with. I found research to be about relationships and process. One true measure of validity is to take the words back to the speaker and ask for validation. If the participant has changed over the course of the research and no longer identifies with their comments or wishes to clarify them, then they are the best judges of that growth. I don't worry that their comments may change as they are influenced by others, because that is a natural process and their individual growth and development should be honored.

The process is a key here. To conduct research toward an end product requires the capturing and freezing of a time frame which stops the process. The best example to give is the state of sacred artifacts in a museum. Sacred bundles have life and life-giving energies that are frozen in time when they are locked away from their rightful keepers. Their value is not merely in their beauty, but in their participation with life. What each of us thought in the spring of 1999 about Indigenous Methodologies may be quite different from what we think now. But our comments then helped us on our individual journey to understanding and could help us now in a different way as we reread the data. If the data had been brought to a conclusion by myself as the researcher on behalf of the students then the process of learning would have ended. Those same conclusions would be drawn each time we went back to the data. But if the data were left without conclusions then each individual could draw their own, according to their journey and as the data are revisited along their path.

As Lionel says, "It is disrespectful to give an answer about important subjects...Each person is sacred. Don't give a sacred person the answer." To keep the process open and in respect for each individual's journey the data will be presented in this work as the comments that were made. This allows readers to draw some of their own conclusions. I will also draw conclusions from the data according to my own journey. If the purpose of the data is not to draw conclusions for others then the data can continue in a living process according to the needs of the participants, the researcher, and the reader. You are invited to draw your own conclusions from Appendix A. Reliability and validity and their standard for determining truth may play either a vastly different role or no role in process research.

A journal or reflective field log as outlined by Glesne and Peshkin was kept before, during and after the research. It included my thoughts, feelings, hunches, reflections, perceptions and contacts. As outlined in the proposal for research, the journal also included observations and the process of getting to know and work with the participants and the instructor.

Analysis

The class notes were typed out in chronological order separating each comment by a few spaces. Then, I sat down with the notes and became calm. I then smudged to purify myself, because that is my way. I asked a power greater than myself to help me organize the data so it would be helpful to others and so it would be following my purpose in life. Then I trusted the process. You could call this praying, meditating, or becoming open. I call it letting spirit into my life and my work.

The data were then organized by cutting each comment out separately and placing them in similar theme piles. I was going to try and draw some parallels here to qualitative methods of data analysis, but I have yet to find any published work that invites spirit or recommends aligning with an individual's purpose to analyze data. I am not concerned with making one knowledge system right, so that another has to be wrong. However, I am concerned that

each knowledge system is available to researchers to use since the paradigms from which they come may have a very different effect on the outcomes of research and our world.

The comments were placed under the themes of Non-Indigenous, Ill Effects of Research, Philosophy - Epistemology, Ethics, The Researcher, About a Methodology, Purpose - Motive and Method, Purpose - Usefulness, Metaphors and A Human Research Methodology. Some comments were pertinent to more than one theme and they were placed under both. They were retyped under these themes and sent to the students asking them to verify only their own comments. The changes were then made and can be seen in parentheses in the data. No omissions were made and only one change was added.

The students were invited to write an introduction of themselves to acknowledge their words. Only one student, Peter HanoHano, responded and his words are included at the end of the data. The other students are listed under anonymous initials.

THE RESEARCH EXPERIENCE (LIFE)

At this point I thought I was ready to develop a framework for research from my experience, the data and others' work. I planned to complete the writing of the research by year's end 1999. I had recognized process and balance, but I had not really experienced it in a holistic way. Life stepped in to help me with that lesson.

At the time, I was busy raising three young children mostly on my own as my husband was frequently out of town. I was also working full time and writing up my research in the evenings, when my body shut down. I had always been able to push to achieve my goals, but my mind and body made me take a break. I had to stop work and I couldn't even focus to read. It was during this down time that I learned a new respect for balance in my life and I understood the true

meaning of process and the need for totally letting go and surrendering control in order to gain knowledge.

I was given the chance to look at life very differently. I processed the research over and over and I began learning what life and my purpose had to teach me about science, research and balance.

There were three areas that stood out in my mind and focused my thinking. One was about the process and the notion that the heart needed to shift before the mind could follow. Another was the story of science and its beginning and how it has permeated our culture. And finally, there was the need for a methodology for all based on our humanness. It is from this thinking that the term balanced research began to emerge. These topics will be discussed and I will build toward a framework for balanced research drawing on my experience, the class data and the literature.

THE STORY OF SCIENCE

History – The Tale Begins

I have to admit that, until now, I had never stopped to question science. I cannot remember any of my teachers telling me that, in terms of human history, science was a relatively new concept and that it has a particularly narrow view when it comes to gaining knowledge and ultimately defining reality. I suppose in the absence of this explanation, I, like my teachers and their teachers before them, assumed that science was the only way of determining truth. I don't think that my experience is solely due to my inattentiveness during school, since the blank faces of those whom I share this with tell me that they, too, were unaware of science's role.

Here I am, at the supposed pinnacle of my education, and I realize that my entire university experience, in fact the culture within which I live, has been

governed by the scientific paradigm. I begin to worry. What have I missed in all those years of education as I wore those narrow vision scientific glasses? This is not meant as a criticism because I have learned much about the world, but I have seen many instances along the way where the learning was not enough. As my children move through school, I remind them often that school only gives them one view of life and that we must search in different ways to find a better way for all people. Together we ask why children are starving each day when the world produces enough food to feed everyone. Why we are polluting our environment using fossil fuels when the technology exists to use sustainable energy sources? What acts have been committed against generations of a people that we are blind to, but that eventually lead to terrorism? These questions are not new, so why doesn't our way of thinking with all of its strength in technology and reasoning power solve these problems? My children and their children need access to the full spectrum of knowledge and wisdom that has evolved during the two-leggeds' (as Lionel would say) time on earth in order to work with these imbalances and bring earth back to equilibrium.

I start my story in this way to let the reader know that it may be tainted by my own experiences. I am not apologizing or making concessions, for I know that your story is your own and you will take only that which will help you on your journey. My responsibility is to make sure that my words are coming from a good place so that they do not cause harm or add to the negativity in our world. My belief is that we all want to make the world a better place and that, if we recognize that our way of being is working against this purpose, we will work together to change our way of being.

Before the scientific revolution, the goals of science were wisdom, understanding the natural order, and living in harmony with that order. (Cajete, 2000)

The scientific revolution occurred in the seventeenth century when, according to Cobb (1988), there were three forces that vied for supremacy. There was the Aristotelian philosophy, a continuing "magical vision", and mechanistic thinking. Cobb notes that the magical vision provided the initial

context for the rise of modern science. It grew from the traditions of Pythagoras, Plato, Hermetic mysticism, and the Cabala. It turned to mathematics and science and allied itself with spiritual forces to control them for human use. It saw nature as being alive with spirit. It went beyond the Aristotelian tradition that found a teleological element in all things.

Those who objected to the magical vision, like Robert Boyle (in Cobb, 1988), did so because it threatened the belief in a God as an omnipotent creator who transcended nature. They found promise in mechanism since it explained how the physical world (matter), which was considered to be completely separate from the mind and soul which was spiritual substance, could be controlled in even its movement by the omnipotent God. Their views were validated by the church because they provided an explanation for supernatural miracles. Cobb states, "The emergence of a mechanistic view of nature, which denied to nature any purpose, capacity for self-movement, or interiority, was not a necessity of science. At least, in part, it was designed to support theological voluntarism, the idea that the transcendent God imposes "His" will by fiat upon the world. (p.103)

The mechanistic view of human beings composed of spiritual souls in a mechanistic body prevailed and soon the account of how matter operated became so satisfactory that the people released the mechanistic view from its association with God. As Cobb notes, "A world composed of purely material, and therefore purely passive, entities became completely self-sufficient...This mechanistic-materialistic worldview was never adequate to the evidence, but its success in guiding theory-formation and experimentation in some areas was so great that it became entrenched as common sense." (pp. 103-104)

At the same time, the philosophy of Rene Descartes divided nature into two independent realms: that of the mind (re cogitans), and that of matter (res extensa). This 'Cartesian' division allowed scientists to completely separate themselves from matter and treat it as though it were dead. It also divided the material world into separate components that could be assembled into a huge machine. The mechanistic view became the foundation for classical physics as

Newton's model of the universe was based upon it. One of its greatest achievements has been the development of technology which has resulted in many advances and conveniences for society.

So great was its success in this area that mechanistic philosophy had far reaching influences and became fundamental in shaping the Western way of thinking. Cartesian beliefs served as a basis for this philosophy and had its roots in the technology of the time. Clockwork during the seventeenth century had reached a high level of precision and Descartes used it as a metaphor to describe his mechanistic view of the human body, "My thought compares a sick man and an ill-made clock with my idea of a healthy man and a well-made clock." (Capra in Sessions, 1995, p.22)

This view may be seen as instrumental today in describing the human brain as a computer. The vocabulary used to describe computer use, such as language, memory, and intelligence, demonstrates and reinforces the Cartesian image of human beings as machines. (Capra in Sessions, 1995)

Descartes' famous statement 'I think, therefore I exist', has led to fragmentation even within the individual as identity became linked to the mind, instead of with the whole organism. Thus the individual was divided 'inside' and viewed their consciousness as separate from their body and able to control it. The conscious is further divided into the conscious will and the involuntary instincts, as well as compartments such as feelings, talents, beliefs etc. The fragmented 'inside' reflects our outer world in that all objects, events, and even nature are separate from us. Even our society is divided into races, nations, religious and political groups. Capra (2000) discusses the harm of a fragmented worldview.

> The belief that all these fragments – in ourselves, in our environment and in our society – are really separate can be seen as the essential reason for the present series of social, ecological and cultural crises. It has alienated us from nature and from our fellow human beings. It has brought a grossly unjust distribution of natural resources creating economic and political disorder; an ever rising wave of violence, both

> spontaneous and institutionalized, and an ugly, polluted environment in which life has often become physically and mentally unhealthy.
> (p. 23)

Within this Cartesian perspective, scientists were able to remove themselves from that which they studied. As objective observers they were empowered to control and predict results through measurement. "Concepts in science must be testable in such a way that the thing being tested can actually be observed and/or measured. If you cannot observe it or measure it and do experiments on it, then it is not properly within the domain of Science." (Garrison, Denetclaw, Scott, 1995, p.4)

Vine Deloria Jr. (1992) draws an understanding of the limits of a science based on a Cartesian view in comparison with a traditional view.

> In most tribal traditions, no data is discarded as unimportant or irrelevant. Indians consider their own individual experiences, the accumulated wisdom of the community that has been gathered by previous generations, their dreams, visions and prophecies, and any information received from birds, animals, and plants as data which must be arranged, evaluated, and understood as a unified body of knowledge... Western science, on the other hand, discards anything that has a remote relationship with the subjective experiences of human beings and other forms of life. The essence of science is to adopt the pretense that the rest of the natural world is without intelligence and knowledge and operates primarily as if it were a machine.
> (p. 15)

It is this split in epistemologies and the underlying characteristics of the Cartesian view that gave rise to the cultural transformation of Western science and philosophy. The Cartesian view has two characteristics: fragmentation and an obsession with domination and control. As Capra notes, "In our society, political and economic power is exerted by a hierarchically structured corporate elite. Our science and technology are based on the belief that an *understanding* of nature implies *domination* of nature by man. I use the word 'man' here on purpose, because I am talking about a very important connection between the

mechanistic worldview in the science and patriarchal value system, the male tendency of wanting to control everything." (Capra in Sessions 1995, p. 22)

This domination is evident historically as modern science took over and controlled systems that had existed since man first walked this earth. The views of modern science permeated and transformed our culture and way of being.

Culture – We are all Swept up in the Tale

Interestingly, Harman (1998) compares growing up in a culture to being hypnotized. He states, "people who are 'hypnotized' by the suggestions implicit in one culture will perceive differently, experience different limits, etc., from those with a different 'cultural hypnosis'". (p. 120)

When a person is taught by a culture's prevailing belief system they tend to find that their experiences conform and legitimize the approved reality of that culture. It is humbling for a scientist to realize that science is, in a sense, a cultural artifact and that a society with different unconscious assumptions about reality can create a very different science. Harman notes, "Advancing scientific knowledge influences the way we perceive the world. *But, the way the world is experienced in our culture influences what kind of science gets developed.*" (p. 121)

This dual relationship between culture and science is still ignored by many, as it was during the time when the Cartesian philosophy of science and culture moved to the new world and dominated the existing knowledge systems.

Pam Colorado, in her 1988 article "Bridging Native and Western Science", argues that the mechanistic worldview empowered large numbers of Europeans to embark on voyages of discovery. Science's control over nature and its predictive powers replaced prophecy and released people from the fear of the unknown. Twenty-five million Native Americans perished as the newcomers explored the new land. Western science replaced the science that had existed for thousands of years in America and was used to dominate the Native Americans.

Rigney (1997), an Indigenous Australian, argues that colonizers came to the new world for three reasons: to search for wealth and profit, to promote the visions of God, and in a quest for power. These driving forces were fueled by the modern science and its theories of superiority. Social Darwinism supported the construct of 'race', categorizing certain groups of people according to their biological differences and placing them in a hierarchy of inferiority and superiority. Indigenous people's were ranked at the bottom of the hierarchy near the animal world and thus were assigned uncivilized characteristics resulting in systematic oppression that was legitimized and is still evident today. As Rigney states, "The process of racialisation declared that my people's minds, intellect, knowledges, histories, and experiences where irrelevant." (p. 6)

Colorado (1988) speaks of the legitimized obliteration of Native American knowledge as the Spanish burned the literature of the Mayan Nation because it contained only superstitious lies of the devil. Traditional Elders were deliberately murdered in the Northeastern United States to force the people into conversion. She contends that the current degradation of Native science (knowledge) is more subtle, either ignoring it completely or passing it off as hallucinations or rattles and paint. The child-like vocabulary used to describe traditional ways places the knowledge in an inferior position and forces it to resume its role as a primitive knowledge system irrelevant to today's world.

Education is the realm in which the cultural discordance becomes evident and passionate since it is the avenue where our way of interacting with the world is transmitted to the next generation. Eber Hampton (1993) embodies this passion in terms that describe some of the harmful effects of the cultural clash when he states, "The educator who sees education as culturally neutral is similar to the spouse of an alcoholic who denies the alcoholism." (p. 300)

Science carries an authority in Western culture as it has become the judge of truthful and reliable knowledge. As such, it holds control over education and credentials, and access to money and manpower. It has become the gatekeeper for what is 'science'. It has the power to displace 'creation science' and any traditional knowledge that may come in contact with it by reason of

definition. Science is socially contingent and culturally embedded and when the curricula portrays science as deriving from a western cultural context without any alternatives, it gives the implicit message that it is the only science. (Cobern, Loving, 1998)

The status and control of science in education is evident in the words of Native students and scholars.

> As a researcher you are restricted because of the political and social issues of the day. You have to tailor your research so that it will be accepted. Within our own institution we are facing the white way (the people who govern). You have to work within the boundaries of the institution to get a degree or to get funding. You have to change your way of thinking.
> Who legitimizes the research process? The refereed journals are not done by Indigenous people. The legitimizing will always be from a white perspective because there is no one refereeing who understands an Indigenous perspective.
>
> (Data, Appendix A)

When science is considered the only way to gather knowledge, there is a danger that it will overstep its usefulness as a tool and instead become a narrow vision of reality. In our culture, "most educators do not emphasize clearly enough the possibility that scientific findings and conclusions may be incorrect even if they are supported by properly conducted experiments and established scientific principles." (Garrison, Denetclaw and Scott, 1995, p.5)

Lionel Kinunnwa told a story that illustrates this clearly. Young graduate students would come to his reserve to study the true story of what had occurred during Custer's last stand. The first student came and asked the Elders about the events that took place. The Elders were willing to share and help the student understand so he could tell his people the true story. The student went away and the next summer another student came asking the elders the same questions. The Elders shared their story again wondering why this person needed to know the same information again. When another student arrived the next summer the Elders would not talk to them since they were not using their learning wisely. At this point the students began asking anyone on the reserve to tell them the story. Lionel said he and his friends were hanging around the

store and they were asked if they knew what the Elders said about the event. They agreed to tell the students a story for a six pack. The students gathered their data and off they went back to the city. Lionel said that their story was more exciting than the truth. With each new student the story became more elaborate and those stories became published as the truth and they still hold today. Lionel called this the six pack version of Custer's last stand.

He said each of the students must have been accurate in their ability to follow the research methods since they graduated and published their work, but despite their abilities, the scientific method failed and the story has now become truth. More importantly, the student's perception of the story has defined reality for Native people in the eyes of academia and the public.

Jo-ann Archibald from the Sto:lo First Nation describes her experience with this phenomenon.

> Based on my teachings and experience, I do not understand how any one could think that they could learn about our cultures by 'living' with us for relatively short periods of time, working at a 'true' depiction of our cultural principles and practices by focusing on a few 'variables' or parts, and, finally, having the audacity to take away the knowledge people have given, perhaps never to be heard from again, until an insider from the culture finds a book written by the outsider anthropologist / ethnographer.
>
> Haig-Brown, Archibald (1996, p.257)

In a discussion of the subculture of science, Aiken and Huntley (1997) identify some of the characteristics revealed by scholars in a field called the 'social studies of science' and its review of literature. They found that the scientists share a well defined system of norms, values, beliefs, expectations, and conventional actions that often include the following attributes: mechanistic, materialistic, reductionist, empirical, rational, decontextualized, mathematically idealized, communal ideological, masculine, elitist, competitive, exploitive, impersonal and violent. These norms and values vary with individual scientists and situations. The authors state, "Because science tends to be a Western cultural icon of prestige, power, and progress, its subculture permeates the culture of those who engage it." (p. 11)

Metzner (1993) proposes an enlightening view of the values that govern science methods. He suggests that science, including classical physics, life sciences and social sciences are far from the objective knowledge systems that purport to attain only facts, free from values. He states, "In actuality the underlying value systems presupposed by science are congruent with the domination and exploitation agenda of the patriarchal mindset: prediction and control are the stated objectives of research, the results of which are fed into technology for 'man's benefit' (read: profit and capital accumulation) and 'security' (read: militarism)." (p. 168)

Perhaps it is these underlying values that can explain our obsession with technological progress. Naess (in Bodian, 1995), as a deep ecologist, sees the detrimental effects of progress.

> Our culture is the only one in the history of mankind in which the culture has adjusted itself to the technology, rather than vice versa. In traditional Chinese culture, the bureaucracy opposed the use of inventions that were not in harmony with the general cultural aims of the nation... whereas here we have the motto, "You can't stop progress, " you can't interfere with technology, and so we allow technology to dictate cultural forms. (p. 32)

The underlying values of our culture (perhaps technology itself) are controlling our actions and our ability to follow even rational thought. David Suzuki gives an example from his own experience when he brought one of his friends, Paiakan, a Kayapo Indian from the Amazon rainforest, to his home in Vancouver when Paiakan's life was threatened due to his defense of his home. Suzuki tells of how they traveled around British Columbia and how Paiakan was shocked to see the devastation of clear-cut logging and slash burning. Paiakan turned to Suzuki and said, "Just like Brazil...People destroy the forest in Brazil because they are poor and they are ignorant...what is Canada's excuse?" (Knudsten, Suzuki, 1992, p. xxxiii)

The paradigm that has dominated our culture for several hundred years, shaped our modern Western society, and significantly influenced the rest of the

world consists of a number of entrenched ideas and values. These include a mechanical view that is composed of building blocks, a view of the human body as a machine, a view of life as a competitive struggle for existence, an unlimited growth of technology and economics through progress, and a society that views females as being under the control of males as a basic law of nature. The most promising feature of this paradigm is that it is now receding and giving way to a new paradigm, a holistic worldview. (Capra, 1996)

Thoughts of Those Who Know in Science – The Story Tellers

It was late in the fifteenth century when nature was studied in a truly scientific way with speculative ideas being tested through experimentation. Mathematics was a growing discipline and Galileo was credited as the father of modern science since he was the first to combine empirical knowledge with mathematics. Thus began the quest to explain nature through measurement, a goal that also intrigued Newton.

Newton was very interested in the order of nature. He studied Descartes in his early years but was appalled by the mechanistic belief that took God out of the description of the order of nature. Newton felt that it was his duty to find God's will. He held that there was a rational God who had made a rational universe that could be discerned through mathematics and physics. (Biography, 1995)

Newton's study of nature sought the synthesis of all knowledge and he was a devout seeker of some form of unified theory of the principles of the universe. Newton also studied the work of Robert Boyle, an alchemist who helped revolutionize chemistry.

> Boyle practiced alchemy as well as chemistry and utilized many of the esoteric aspects of the former to push forward the theoretical limits of the latter. What he laid down as formative concepts, Lavoisier, Priestley and others later confirmed by experiment and put to practical use. Boyle was an atomist who believed that the shapes and natures of individual atoms created differences in chemical behaviour. He proselytized the concept of basic elements that could be combined into groups (molecules) which

> could be broken down again and rearranged – all hypotheses later integral to the chemical revolution of the late eighteenth and early nineteenth century.
>
> (White, 1998, p. 134)

Newton's preliminary study of alchemy may have convinced him of its value in his pursuit of a unified theory since he delved into the literature to form an intellectual foundation of the discipline for several years before he began its practice. Alchemy was defined as the balancing of the four basic elements of nature including fire, earth, water and air to transmute materials from one form to another. It also held the belief that each element had special characteristics that related to human emotion and endowments.

Alchemy was an ancient practice that some say Moses practiced. It was this closeness to the original story of creation that intrigued Newton, for he felt that the ancients held the wisdoms to explain the forces of the universe. The study of alchemy evolved into a search for the elixir of life and the creation of the philosopher's stone that would transmute ordinary metals into silver and gold. But, for many, it was the spiritual element involved with the process of alchemy that held the true motivation.

> The spiritual element of the experiment was in fact the key to the true alchemist's philosophy … it was the practical process that was in fact the allegory and their search was really for the elixir or the philosophers' stone within them: that, by conducting a seemingly mundane set of tasks, they were following a path to enlightenment - allowing *themselves* to be transmuted into 'gold'. This is why the alchemist placed such importance on 'purity of spirit' and spent long years in preparation for the task of transmutation before so much as touching a crucible.
>
> (White, 1998, p. 127)

Being pure of soul and spiritually involved with the divine process would be in keeping with Newton's strong belief in God. White argues that Newton's famous discovery of gravity came through insights gained during his study of alchemy and its spiritual nature, rather than the observation of an apple falling to the ground. Around 1670 Newton succeeded in forming a material from

antimony, a substance found in stibnite. This was a known material produced by alchemists in the 15th century and was named the *Star Regulus of Antimony*.

> The star of Antimony is of particular interest in any effort to link Newton's alchemical researches with his elucidation of the law of universal gravitation. As the name implies, the regulus does look like a star, and its radiating shard-like crystals (Plate 9) may be imagined as lines of light radiating from a starlike centre. But the crystal may just as easily be visualized as representing shards or lines of light pointing inwards – a star at the centre with lines of light, or force, traveling towards its centre.
> (White, 1998, p. 145)

Stukeley, who wrote of Newton's memoirs, said that a source revealed that Newton had written a Principia Chemicum that explained alchemistry through experimental and mathematical proofs. This work had supposedly been burnt in a fire that occurred in his laboratory in the winter of 1677-8. Stukeley states that Newton valued this work very much and that he would never undertake the work again. (Stukeley in White, 1998)

Newton published his famous work on the principle of universal gravitation, *Principia*, a decade later. Perhaps his insight about the forces of nature came from the findings of his alchemy experiments. Or perhaps his knowledge of the spiritual ways of alchemy to gain knowledge of the divine process allowed him to tap into the greater knowledge of the universe.

Einstein, like Newton, was fascinated by the underlying order in nature. He felt that by looking deep into nature one would be able to understand everything. Einstein was able to think outside the scientific paradigm of the time to replace Newton's laws of gravitation and motion.

Einstein's theory of relativity holds ideas that are being proven to this day even though they were proposed early in the previous century. In 1916, shortly after the release of his theory, a deviation in the timing of Mercury's orbit which had not been in congruence with Newton's laws of gravitation, but which had been predicted by Einstein, was proven by observing an eclipse. The world, at the time, was watching and this moved Einstein and his theories into the realm of the famous. (Einstein Revealed, 1996)

The Big Bang was also predicted in Einstein's General Theory of Relativity. When Edwin Hubble discovered that the universe had not always existed, through evidence of an expanding universe, Einstein came to look through the telescope. Robert Jastrow, Ph. D., founder of NASA's Goddard Institute, tells us that Einstein had disagreed with the notion of a big bang since it would suggest a beginning and a creator and he believed that God was part of the order of nature. But after seeing evidence of the galaxies being red shifted (moved) away at rapid speed, Einstein said, "Yes, now I believe it, there was a big bang." (Heeren, 1997)

Further proof of the Big Bang theory was found with the discovery of cosmic seeds for our universe. George Smoot Ph.D., head of the COBE satellite team, states that the further out in space you look, the further back in time you can see. The COBE satellite is able to see within the first 300,000 years of our universe's beginning, where primeval galaxies can be recognized as bulges before they erupt into galaxies. (Heeren, 1997)

Other physicists speculate on the meaning of the big bang. Mark Davis Ph. D., principal investigator of large scale structures of the universe, talks about the concept of fine tuning. He suggests that the creation of the universe was on a knife's edge. Physicists wonder how the initial conditions could have been so finely tuned to create our universe and life, since the energy of expansion would have had to be in perfect balance with the energy of gravitational attraction. The kinetic energy would have had to be finely tuned to an amazing precision, such as 10 to the 60 or 1 with 60 zeroes after it. If it had been any slower (by decimal points) the universe would have collapsed into itself billions of years ago, and if it had been any faster, the universe would have expanded at such a rate that life would never have had time to form. (Heeren, 1997)

Eric Carlson Ph.D., Senior Astronomer Adler Planetarium, states, "The beginning of the universe was an extremely highly ordered event as opposed to a chaotic event". Smoot adds, "It seems it was all done to make us possible and it is extremely unlikely that it occurred due to random chance." (Heeren, 1997)

Perhaps this order in nature to which Einstein dedicated his life could explain his ability to think about realms that were beyond conventional thinking and to gain knowledge about concepts that are being proven a century later. Holton, a physicist and historian of science at Harvard University, has written about Einstein's creativity. He notes that Einstein's "thought experiments" were evidence of his great ability to visualize interactions with nature. Also, he possessed a deep intuition into the essential elements of a problem, coupled with a great power of concentration (sometimes years) to work on a problem. (The Advancement of Science, and Its Burdens, Gerald Holton, Cambridge University, 1986)

In Monsay's 1997 article, "Intuition in the Development of Scientific Theory and Practice", she speaks of Einstein's imagination and intuition.

> Imagination is a form of thought associated with mental images. Imagination typically refers to the appearance of images in the mind, sometimes intuitively received, which can be manipulated and require translation into words...Einstein himself had said that imagination is more important than knowledge. Imagination shares the global, nonrational nature of intuition, and is a close cousin to it.
>
> (p. 105)

Einstein spoke of the role of intuition in his work. "The supreme task of the physicist is to arrive at those universal elementary laws from which the cosmos can be built up by pure deduction. There is no logical path to these laws: only intuition...". (Hoffmann and Dukas, 1972, p. 222)

The last twenty years of Einstein's life were dedicated to understanding a Unified Field Theory. In his later years he said, "Physicists consider me an old fool, but I am convinced that the future developments of physics will depart from the present road." (Highfield and Carter, 1993, p. 259)

He, like the physicists after him, believed that there was one theory that could explain all the fundamental forces of nature including gravity. It was in this pursuit of unification that physicists came to discover the string theory. An overview of this theory comes from Brian Greene at Cornell University.

> The usual domains of general relativity and quantum mechanics are quite different. General relativity describes the force of gravity and hence is usually applied to the largest and most massive structures including stars, galaxies, black holes and even, in cosmology, the universe itself. Quantum mechanics is most relevant in describing the smallest structures in the universe such as electrons and quarks. In most ordinary physical situations, therefore, either general relativity or quantum mechanics is required for a theoretical understanding, but not both...There are, however, extreme physical circumstances which require both of these fundamental theories for a proper theoretical treatment...such as the central point of a black hole or the state of the universe just before the big bang...String theory solves the deep problem of the incompatibility of these two fundamental theories...String theory is based on the premise that the elementary constituents of matter are not described correctly when we model them as point-like objects. Rather, according to this theory, the elementary 'particles' are actually tiny closed loops of string...It turns out that the equations of string theory are self consistent only if the universe contains, in addition to time, nine spatial dimensions.
> (Greene, 1995, p. 1)

Green continues on to explain the Kaluza-Klein Theory that supports the existence of extra dimensions within our universe and the relation of string theory to gravitational fluctuations, the topology of spacetime, and Mirror Manifolds. He states, "that the long suspected possibility of topology changing processes can be explicitly realized in string theory." (p. 4)

Even though dimension shifting has not yet been proven, it would seem that physicists are remarkably close to explaining phenomena that seemed beyond the scientific realm.

David Bohm was a physicist who challenged the epistemological structure of science, since his queries into the two contradictory theories of modern physics found common ground in their undivided wholeness which questioned the very underlying order of science. He was especially rare among physicists since when he encountered an obstacle he sought insight well beyond science and deep into other epistemological realms such as his extensive dialogues with the Indian spiritual master and mystic, J. Krishnamurti. His ability to build a spiritual foundation into his theories gave them a profound

philosophical and metaphysical significance while rigorously preserving their empirical and scientific base, exemplifying his commitment to wholeness in his own epistemology. (Keepin, 1993)

The most striking feature in Bohm's work is the concept of unbroken wholeness in flowing movement. "Bohm postulated that the ultimate nature of physical reality is not a collection of separate objects (as it appears to us), but rather it is an undivided whole that is in perpetual dynamic flux." (Keepin, 1993, p. 2)

Bohm's study of quantum physics and relativity theory demonstrated a universe that was undivided, in which all the parts merged as one. This undivided whole was not static, but in a state of constant flux. From this whole arises mind and matter and they are not separate, just as living and non-living things are not divided and matter is not independent of empty space. All things in our universe arise and dissolve into a kind of invisible ether.

Bohm uses the term *holomovement* to describe reality, in that the *movement* describes the constant flux and *holo* describes the structure likened to holography. In holography, if light is shone on one small part of a holographic image, the entire image will be revealed in that tiny part. While in conventional pictures, focusing on one small part will reveal only a series of dots. Bohm believed that each part of physical reality contains information about the whole. Reality described in this way touches upon what I believe Elders such as Lionel Kinunnwa mean when they say "we are all connected".

Chaos theory and fractal geometry have recently found evidence for holographic structure in nonlinear systems that embody a multitude of self-similar structures that are nested within one another at different scales. (Keepin, 1993)

Bohm's holomovement is comprised of two fundamental aspects, the explicate order and the implicate order. This deserves much explanation, as it is fascinating, but I will try to simplify the telling and hope that the meaning is not lost. The explicate order is the level of reality that we perceive and the one in which science is housed, since science creates reality by only that which can be

observed and measured. The implicate order is operating at a level beyond the ability of current instruments or concepts to detect. For Bohm, it is the implicate order that is the fundamental and primary reality, and the explicate order which includes our perceptions of the vast physical universe that is but a set of "ripples" on the surface of the implicate order.

Much of the implicate order is hidden, and though I can think of many times in my experience that I have had a glimpse or a feeling of the implicate order, I will stay with an explanation in physics since it is the reality barometer in western science. Bohm's explanation of reality offers an understanding of what lies behind the quantum mechanical behavior of electrons as they jump discontinuously from one quantum state to another, as Keepin (1993) explains.

> An electron is understood to be a set of enfolded ensembles, which are generally not localized in space. At any given moment, one of these ensembles may be unfolded and localized, and the next moment, this one enfolds and is replaced by another that unfolds. If this process continues in a rapid and regular fashion in which each unfoldment is localized adjacent to the previous one, it gives the appearance of continuous motion of a particle, to which we humans have given the name electron. Yet there is no isolated particle, and its apparent continuous motion is an illusion generated by the rapid and regular sequence of unfoldings (much as a spinning airplane propeller gives the appearance of a solid disk)...Moreover, at any stage of this process, an ensemble may suddenly unfold that is very different from the previous one, which should give the appearance in the explicate order of the electron suddenly jumping discontinuously from one state to another.
>
> (p. 6)

As Bohm states, "...the particle is only an abstraction that is manifest to our senses. *What is* is always a totality of ensembles, all present together, in an orderly series of stages of enfoldment and unfoldment, which intermingle and inter-penetrate each other in principle, throughout the whole of space (Bohm, 1980, p.183-184)

The objects of ordinary reality are projections of a higher dimensional implicate order that is interpenetrating with the explicate order in every region of space-time. As Bohm (1980) states, in the implicate order, "the totality of

existence is enfolded within each region of space (and time). So, whatever part, element, or aspect we may abstract in thought, this still enfolds the whole and is therefore intrinsically related to the totality from which it has been abstracted. Thus, wholeness permeates all that is being discussed, from the outset." (p.172)

This knowing that is in every part of our being, and in relation to every form of matter during all time, would seem to speak to the notion of Lionel's cellular knowledge.

Bohm also speaks of a superimplicate order that is beyond time and is neither static nor everlasting, but ever creative. There is also the possibility of successive orders that are barely felt by our explicate order. The superimplicate order would guide hidden processes in the physical and natural world, like climate, evolution, and instincts.

Bohm argues that the interpretation of quantum theory and all physical theories rely on the assumptions of the interpreter. He demonstrates some of our assumptions through a discussion of language. We assume that language is neutral and does not constrict our world view, however if we agree that all objects are not static, but rather in a constant state of flux, then we can see that our language, which deals in nouns as objects rather than changing entities does not reflect a differing reality. For instance, print on paper seems static, but it is actually evolving toward dust, so it should be called papering. Indigenous languages would seem to encompass this reality more easily with their focus on the verb and the non-distinction between the animate and the inanimate.

Another interesting assumption that Bohm exemplifies is the separation of thought from content. This separation allows us to stand apart from the content of the thought to decide if the thought is correct or incorrect, rational or irrational, fragmentary or whole.

> The trap of tacitly treating such a view as originating independently of thought, thus implying that its content actually is the whole of reality. From this point on, one will see, in the whole field accessible to one, no room for change in the overall order, as given by one's notions of totality, which indeed must now seem to encompass all that is possible or even

> thinkable...To adopt such an attitude will evidently tend to prevent that free movement of the mind needed for clarity of perception, and so will contribute to a pervasive distortion, extending into every aspect of experience.
>
> (Bohm, 1980, p. 62)

So, if there was a Grand Unifying Ballet that encompassed all possible creativity past, present and future, the creation of another ballet would be unnecessary and redundant. It will take a paradigm shift in our thinking to move from a results-oriented reality to one of process. If reality is a dynamic process, science would be part of that process as an art form with infinite potential.

Bohm was criticized for thinking outside the realm of science, but he pointed out that there is no scientific evidence that argues for a dominant, fragmented, scientific worldview over his hypothesis of undivided wholeness. Also, if physicists hold up their allegiance to fragmentation which is required of them to practice, they must not believe it, since they are searching in earnest for the Grand Unifying Theory. (Keepin, 1993)

Bohm's work focused not on the prediction and control of physics, but rather on the truth. His view of reality was in accordance with many of the ancient wisdoms. His ability to look for knowledge beyond the boundaries imposed by science allowed him to conceptualize an entirely new way of understanding the fundamental nature of the physical universe, as glimpsed through the data and laws of physics.

Rupert Sheldrake's discussion of the hypothesis of formative causation provides support for the existence of fields. According to this hypothesis, "the form and organization of cells, tissues, organs and organisms as a whole are governed by a hierarchy of morphogenetic fields which are not inherited chemically but given directly by morphic resonance from past organisms of the same species." (Sheldrake, 1988, p.83).

The implication of this hypothesis has application in many areas. In chemistry, it explains how the formation of identical crystals occurs more readily in different locations over time. A clear example comes from biology and the

learning by animals of new patterns of behaviour. Experiments conducted on rats as they maneuvered a specially designed water maze showed that successive generations of the same family completed the maze faster than their parents on their first attempt. Experiments conducted in different countries with unrelated rats showed that they too were generally able to complete the maze faster than the members of their species who first mastered the task.

This evidence may give us some insight into the concepts of cellular memory that Lionel speaks of, as well the belief that we evolve as a civilization, perhaps through a connected conscious field.

Dr. Deepak Chopra (2000), a doctor of medicine, speaks of these possibilities in his beliefs about reality.

> Everything that we experience as material reality is born in an invisible realm beyond space and time, a realm revealed by science and to consist of energy and information. This invisible source of all that exists is not an empty void but the womb of creation itself. Something creates and organizes this energy. It turns the chaos of quantum soup into stars, galaxies, rain forests, human beings, and our own thoughts, emotions, memories, and desires.
>
> (p. 1)

Much like Bohm's (1980) implicate order, Chopra describes three realms of existence that are beyond those that can be detected by our five senses.

MATERIAL REALITY = VISIBLE UNIVERSE
- Events are defined
- Objects have firm boundaries
- Matter dominates energy
- Three – dimensions
- Knowable by the five senses
- Time flows in a straight line
- Changeable
- Subject to decay
- Organisms are born and die
- Predictable
- Cause and effect are fixed

QUANTUM DOMAIN = MIND
- Creation manifests
- Energy exists
- Time begins
- Space expands from its source
- Events are uncertain
- Waves and particles alternate with one another
- Only probabilities can be measured
- Cause and effect are fluid
- Birth and death occur at the speed of light
- Information is embedded in energy

VIRTUAL DOMAIN = SPIRIT
- No energy
- No time
- Unbounded – every point in space is every other point
- Wholeness exists at every point
- Infinite silence
- Infinite dynamism
- Infinitely correlated
- Infinite organizing power
- Infinite creative potential
- Eternal
- Unmeasurable, immortal, beyond birth and death
- Acausal

(Chopra, 2000, p. 38)

According to Chopra, we can perceive the material realm because our nervous systems are photon sensing machines. The brain cannot explore with the senses beyond where photons go, which is the event horizon defined by Einstein's discovery of the speed of light as absolute. Anything within the speed of light is the known or material realm, whereas anything that is faster than the speed of light is the unknown or quantum realm. The quantum level is where feelings, thoughts, memory, and intelligence occur. Chopra notes that the quantum level is accessible to us since our brains are not only photon jugglers, but quantum machines that create thought by manipulating energy into intricate patterns. The virtual realm is like Bohm's superimplicate order, in that it is beyond time as we know it. Chopra states, *"the pre-creation state has no time, it is still here*. The Big Bang has never happened in the virtual domain, and yet

paradoxically all Big Bangs have happened – no matter how many times the universe expands across billions of light-years, only to collapse back onto itself and withdraw back into the void, nothing will change at the virtual level." (p. 32)

Like Bohm's undivided whole, Chopra speaks of a field of awareness.

> I conclude that the field of awareness is our true home, and that awareness contains the secrets of evolution, not the body or even DNA. This shared home is the 'light' spoken of by mystics; it is the potential for life and intelligence once they appear. Your mind is one focus of this cosmic awareness, bit it doesn't belong to you like a possession. Just as your body is held together by inner awareness, there is a flow of awareness outside you.
>
> (p. 243)

Fritjof Capra is a physicist who has devoted his career to drawing parallels between Eastern Mysticism and modern physics, and first published his work over twenty-five years ago in the Tao of Physics. I need to credit Capra with planting some of the seeds that have grown to formulate this research. I remember an undergraduate class in which the assigned text was The Turning Point by Capra (1992). In this book, he unfolds a new vision of reality and demonstrates how a change of worldview is occurring in science (with physics leading the way) and in our society by the end of the last century. I don't recall the content of the course, but I do remember being very excited as I read the book and I remember how it gave me a sense of hope, and spoke to something deep inside me. I remember coming to class wanting very much to discuss the ideas in the book and being met with criticism, negativity, and one-way thinking. I remember sitting quietly in class thinking about how the critics were being controlled by their paradigm and how freeing it would be to accept another paradigm that would allow us to think in an entirely different way. If our belief in the current paradigm was causing so much destruction in the world, then why wouldn't we be willing to change our view to balance the world. Unfortunately, the critics were having a difficult time seeing that a paradigm existed, never mind changing it.

Capra's work provides an excellent understanding of the relationship between physics and eastern religions as well as the emergence of a new paradigm. In Belonging to the Universe (with Steindl-Rast, 1986) he outlines a new paradigm for thinking in science.

- *Shift from the part to the Whole* – In the old paradigm it was believed that, in any complex system, the dynamics of the whole could be understood from the properties of the parts. In the new paradigm, the relationship between the parts can be understood only from the dynamics of the whole. Ultimately, there are no parts at all. What we call a part is merely a pattern in an inseparable web of relationships.
- *Shift from Structure to Process* - In the old paradigm it was thought that there were fundamental structures which interacted through forces and mechanisms, thus giving rise to processes. In the new paradigm every structure is seen as the manifestation of an underlying process. The entire web of relationships is intrinsically dynamic.
- *Shift from Objective Science to "Epistemic Science"* - In the old paradigm scientific descriptions were believed to be objective, (i.e. independent of the human observer and the process of knowledge). In the new paradigm it is believed that epistemology – the understanding of the process of knowledge – is to be included explicitly in the description of natural phenomena. At this point there is no consensus that epistemology will have to be an integral part of every scientific theory.
- *Shift from Building to Network as Metaphor of Knowledge* - The metaphor of knowledge as building – fundamental laws, fundamental principles, basic building blocks, etc. – has been used in Western science and philosophy for thousands of years. During paradigm shifts it was felt that the foundations of knowledge were crumbling. In the new paradigm this metaphor is being replaced by that of the network. As we perceive reality as a network of relationships, our descriptions, too, form an interconnected network representing the observed phenomena. In such a network there will be neither hierarchies nor foundations. Shifting from the building to the network also implies abandoning the idea of physics as the ideal against which all other sciences are modeled and judged, and as the main source of metaphors for scientific descriptions.
- *Shift from Truth to Approximate Descriptions* - The Cartesian paradigm was based on the belief that scientific knowledge could achieve absolute certainty. In the new paradigm, it is recognized that all concepts, theories, and findings are limited and approximate. Science can never provide any complete and definitive understanding of reality. (Capra, 1991)
- *Shift from Domination and Control of nature (including human beings) to one of cooperation and nonviolence* - Ever since Bacon, the goal of

> science has been knowledge that can be used to dominate and control nature, and today both science and technology are used predominantly for purposes that are dangerous, harmful, and anti-ecological. The world view that is now evolving includes a profound change in values and a complete change of heart – from intent to dominate and control to an attitude of cooperation and nonviolence. This last shift is not a criterion of the paradigm shift, as Capra notes, but rather an advocacy on his part. (Capra, 2000)

Capra writes these criteria for a new paradigm of thinking with David Steindl-Rast who gives a theological equivalent of the criteria. I have not included these Steindl-Rast's criteria because they deal with religion rather than spirit.

Capra (1996), has made a shift in his own thinking and now sees the life sciences as having the lead role in describing reality.

> Even though the paradigm shift in physics is still of special interest because it was the first to occur in modern science, physics has now lost its role as the science providing the most fundamental description of reality. However, this is still not generally recognized today. Scientists as well as nonscientists frequently retain the popular belief that "if you really want to know the ultimate explanation, you have to ask a physicist," which is clearly a Cartesian fallacy. Today the paradigm shift in science, at its deepest level, implies a shift from physics to the life sciences.
>
> (p. 13)

Capra (1996) feels that the new vision of reality is ecological and outlines its basic principles as being interdependence, recycling, partnership, flexibility, diversity, and consequently, sustainability. Capra's views are embedded in deep ecology, a philosophical school that was founded by Arne Naess, a Norwegian philosopher, in the early 1970s when he made the distinction between "shallow" and "deep" ecology.

> Shallow ecology is anthropocentric, or human-centered. It views humans as above or outside of nature, as the source of all value, and ascribes only instrumental, or "use," value to nature. Deep ecology does not separate humans – or anything else – from the natural environment. It

> sees the world not as a collection of isolated objects, but as a network of phenomena that are fundamentally interconnected and interdependent. Deep ecology recognizes the intrinsic value of all living beings and views humans as just one particular strand in the web of life.
> Ultimately, deep ecological awareness is spiritual or religious awareness. When the concept of the human spirit is understood as the mode of consciousness in which the individual feels a sense of belonging, of connectedness, to the cosmos as a whole, it becomes clear that ecological awareness is spiritual in its deepest essence.
> (p. 7)

Arne Naess states that deep ecology involves a shift from science to wisdom. He also describes the essence of deep ecology as the ability to ask deeper questions. When those questions are asked, "we are not limited to a scientific approach; we have an obligation to verbalize a total view." (Bodian, 1995)

It is this shift beyond the scientific approach that this research speaks to. Thomas Kuhn (1996) recognized discontinuous, revolutionary breaks in science through the ages as major paradigm shifts that occurred in the way that the scientific community defined its values, concepts, and techniques and formulated its problems and solutions. These paradigm shifts resulted in cultural transformations.

Capra (2000) extends Kuhn's definition of the shared ways of perceiving reality beyond the scientific community to the social paradigm and the way in which a community shares practices and forms a particular vision of reality by which to organize itself.

I believe this is a step toward recognizing the way in which we evolve as a civilization. Science was a necessary step in our evolution, but we need to break away from its boundaries to perceive a broader and more in-depth vision of reality. Science will not be ignored, but rather will take its place as a tool for gaining knowledge rather than a way of perceiving reality.

Thoughts of Those Who Know in the Indigenous World – The Patient Listeners

Another catalyst for this research, although I did not know it at the time, came during a conference in the late 1980's where I heard Pamela Colorado speak. Dr. Colorado is Oneida and she completed her graduate work at Harvard. She also founded the World Wide Indigenous Network in 1989. I was inspired by a story she told which I have recently found in an interview she had with Jane Carroll. I will summarize the story and hopefully not lose the meaning in the process.

Colorado told us about a prophecy that came from the oral tradition of the Native people of the Americas, in which a definite decision was made to conceal the knowledge of the time because they were coming into a time of the dark sun. During this 468 year dark sun, consciousness would go through darkness and the knowledge would need to be protected from falling into the wrong hands because it was too powerful and sacred.

Before the time of the dark sun there was much contact between the peoples of North and South America and across the Atlantic and Pacific Oceans. There were established trade routes and ways of exchanging knowledge and conferences or policy-making sessions held approximately every six years in Mexico City.

When Colorado heard this prophecy in Mexico she visited one of her Chiefs who verified the prophecy with traditional knowledge from the reading of a wampum belt, which is a mnemonic device used to trigger the mind in oral history. She later found a document in Mexico City that was recorded by a Catholic priest who had been at the last meeting of the people. It was written in Spanish and Nahuak, an Aztec language.

In the translation of the document, the event took place in Mexico at Tenochtitlan in 1521 and the speech was given by Cuautemoc, one of the last Aztec chiefs. He stood in front of thousands of people, telling them the horrific prophecy of how they were going to live and survive during the next 400 years.

They were to be prepared by the spiritual and scientific community in several ways.

> First was that the sites of knowledge – such as the pyramids and the petroglyph sites that dot the Americas – those traditional universities would be closed and the knowledge would no longer be recorded; neither written down in the case of the Aztecs or Mayans, nor enacted in the big centers of ritual, like the pyramids. This is why, when the white people came, they found so many of the ancient sites apparently abandoned. Secondly, the people were told that the ancient teachings would have to be preserved within family structures, and moved to the personal domain of our own hearts. Thirdly, native tribes would stop the cycle of international gatherings and as a result, the knowledge would become scattered to all the directions.
> It was said, at that time, that only two things would stay open – we would keep our languages alive, because so much knowledge of our ancestors is in that; and secondarily we would keep our spiritual contact with the Great Spirit, and that would stay open always. It was understood that this layering of activity would encode teachings on our consciousness, just as the ancients carved their knowledge into rocks. And like the rocks, the knowledge or consciousness can be entered into, now, only with the correct 'key'.
>
> (Carroll, 1992 p.22)

According to the Aztec calendar, a new sun arrived after the time of darkness in approximately 1987. The prophecy said that at the end of the dark sun, the land of the condor (South America) and the land of the eagle (North America) would unite and the knowledge of the earth, meaning not just the physical earth but the 'energies', would come out again and become whole. The ancient knowledge will rise again, only this time the key to it is integration, and it must be done with all the directions.

Colorado speculates that all of the directions may refer to the colors of the races of man and that, as we meet, each will have a fragment of the knowledge. As the pieces are put together the knowledge will become whole again. She also speaks of the Indigenous languages and how they have universal words that may help to complete the ancient knowledge. She gives an example of how the knowledge may be surfacing in what White (1998) calls the

'the overview effect'. This can be explained by the experience of the astronauts when they first viewed earth as a whole, rather than as the separate parts we see. Some called it a spiritual awakening as they stood back and viewed the earth while at the same time recognizing that they were a part of it.

Colorado says that environmentalists recognize that an experience like this is needed to transform the worldviews of individuals so they can approach the earth with a new set of values that can be carried in our minds and our hearts. The ability to give each individual this insight can be found in traditional ways. She tells about the reenactment of the voyages that would have taken place before the time of the darkness when people crossed the oceans without benefit of instruments or charts. A Hawaiian, Nainoa Thompson was taught by a Micronesian Elder who knew how to navigate in the traditional way. Nainoa voyaged from Hawaii to Tahiti and later Rarotonga to New Zealand, a distance of 1700 nautical miles over open seas. He steered a course only 100 miles farther than the shortest distance possible between the two points and this was due to bad weather. He used the techniques described by Colorado.

> As native people, we learn to train our minds from the time we are children, to be centered where we are, grounded in reality, and see all the signs that are around us. For the purposes of navigation, it is necessary to see the roll of the waves, the movements of the fish, the birds and the winds, etc. In addition, you have to have the ability to project yourself out, 'to see what it's not possible to see'...it is an ability our people have known for thousands of years, and still practice. Now our task is to see that this mental acumen, this capacity of 'the good mind' is not lost...the ability to project ourselves out, is the knowledge that is necessary if we are to create a healthy relationship with the earth.
>
> (Carroll, 1992, p. 26)

This prophecy has stayed with me since I first heard it and I have thought of it often. It explains for me many aspects of our shifting paradigm. Colorado says that this knowledge could not have surfaced before this time of the light, so any previous attempts to consolidate knowledge would not have been successful. Modern science needed to evolve to a place where physicists such

as Bohm could draw parallels to ancient knowledge so it would be recognized when it surfaced. During an earlier time, Cartesian philosophy would have denied its existence.

The prophecy tells of hope and renewal for all people. It demonstrates the existence of a higher consciousness and our ability to access it with proper protocols. It speaks to similar prophecies among the world's Indigenous population and it begins the ground work for their knowledge to be accepted. Most importantly, it gives purpose to this research as an opening of doors to allow the integration of knowledge to occur.

Dr. Gregory Cajete, a Tewa Indian from Santa Clara Pueblo, has explored Native Science and articulated its wisdom in several publications. He defines Native science not as quantum physics or as environmental science but rather as a science on its own that shares with these sciences common understandings about the workings of the natural laws through experience and participation with nature. He agrees that the groundwork for an exchange of knowledge is being created, but that the dialogue must allow Native cultures to gain as much as they share about their understanding of natural laws.

He draws parallels between the concepts of chaos theory and the process of Native science. This theory and its connection to quantum physics has allowed Western science to come to a closer understanding of how Native people view nature, "that is, that nature is not simply a collection of objects, but rather a dynamic, ever flowing river of creation inseparable from our own perceptions." (Cajete, 2000, p. 15)

Chaos theory can be described as both movement and evolution. It is a process whereby everything in the universe is manifested and then returned to the chaos field. It is the ebb and flow of chaos at all times and in all places from the universe, to the mountains, to the mind that is like the spirit in Indigenous thought, part of all things and the mystery from which all things come into being. These systems are beyond prediction or control, both underlying philosophical premises of Western science. Instead they beckon the scientist to move

creatively with the flow of events, which is seen as the true reality of the universe.

Native science is described by Cajete (2000) as a "science of the subtle". It focuses on the inner nature wherein lie the nuances of life and it is in accordance with chaos theory that shows that, "small, apparently insignificant things play major roles in the way a process unfolds." (p. 17)

It is through these nuances that human creativity, and ultimately individual and collective truth, can be understood. Truth is not a fixed point but rather an ever-evolving point of balance, perpetually created and perpetually new. Human consciousness, a result of the influences of our experiences, perceptions, language, and society, is being created as the forces of chaos influence us at the individual and collective levels. There is a point in chaos where balance is reached for a moment. It is during this moment that truth comes to be intuitively known as a connection is made to a natural principle. Cajete explains, "Native science at its highest levels of expression is a system of pathways for reaching this perpetually moving truth or 'spirit'...Herein lies the true power of individual and collective creativity and its subtle power to influence the entire world...that a single individual's vision may transform a society, or that a rain dance done properly with one mind, can bring rain." (p. 19)

It is this development of spirit and its absence in Western science that many Indigenous authors stress. McShane (1984) discusses the differing conceptions of obtaining truth from a traditional perspective.

> In Western thought, objective ideas or observations carry a higher value than subjective ones; they are more real, they are better, and they are more acceptable socially...in the Ojibwa way of thinking the whole world is alive with power and spirit; it is like a whole organism, we are only parts of it. What we feel without seeing – in dreams, visions, intuitive perceptions, emotional responses – may be real, or more real, than what is seen with the eyes only. Thus the Ojibwa attitudes and methods of healing are based upon feelings and perceptions which are not objective, for they draw upon this real world, which as with all living being, is approached with respect.
>
> (p. 82)

The loss of spirit has come about through the growth of modern technologies that mirror ourselves to ourselves, and our socialization that make it impossible to participate with nature with our whole being. We are no longer able to speak the language of nature or hear its subtle voices. The perceptual wisdom and way of participation with nature that is absent in our modern culture is not a return to the hunter-gatherer ways of our ancestors, but rather a way to face the environmental challenges of the twenty-first century. (Cajete, 2000)

Kawagley, a member of the Yupiaq worldview, notes that Aristotle listed four elements in the world: earth, air, fire and water, while his people have identified five elements; earth, air, fire , water, and spirit. The element that is missing in Western science, spirit, has allowed Kawagley's people to develop, "awareness of the interdependence of humanity with the environment, a reverence for and a sense of responsibility for protecting the environment." (1995, p.40)

Spirit is the means by which Native people gain insight into relationships with nature that help to build community and maintain harmony, which is a foundation of native science. Tribal understandings have been gathered through generations of going inward and juxtaposing that knowledge on the physical plane as culture and community. The Cree word *mamatowisowin* describes the capacity to, "tap the creative force of the inner space by the use of all the faculties that constitute our being – it is to exercise inwardness." (Ermine, 1995, p.105)

According to Ermine, these valuable conceptualizations of inner space are recorded in the stones of the ancient medicine wheels.

> The stone circles and the indestructible fragments constituting the whole wheel infuse us with thoughts of a universe depicting the wholeness found in the inner space...They give us insight into our common humanity and our connectedness...and it is only by analyzing and synthesizing the truths of inner space that we can fully decipher the messages of the wheels...Only by understanding the physical world can we understand

> the intricacies of the inner space. Conversely, it is only through journeys into the metaphysical that we can fully understand the natural world. (p. 106-107)

Art, such as the weaving of ceremonial baskets, sand paintings and the beading of pipe bags are a reflection of this same process. Inner journeys are reflected in the art and the art is a key to inner journeys. Science is an art form that incorporates an explanation of how things happen and a way of 'looking'. Cajete (2000) reflects, "the idea that science and art are two sides of the same coin is what Indigenous people have always tried to convey." (p. 78)

Spirit, or the energies in nature, have long been understood by Native people. Kawagley and Barnhardt (1997) tell the story of a man and his use of nature's energy. He becomes caught on an ice flow and during the night the ice between himself and the land freezes over. His Elders have told him that if he raises an ice pick two feet above the ice and lets it fall, if it stops at the handle the ice is safe to navigate, but if it goes through the ice, it will not hold a man. He does this, the pick stops at the handle, and the story continues.

> The man looked around him at the beauty and the might of Nature, and realizing the energies that abound, he got onto the ice. He had to maintain a steady pace for if he stopped or began to run he would fall through as a result of breaking his rhythm and concentration. The story goes that when he began his journey across the ice, there was a lightness and buoyancy in his mind. This feeling was conveyed to his physical being. Although the ice crackled and waved, he drew energy from nature by being in rhythm with the sea and ice and, maintaining a lightness and buoyancy of mind, he made it safely to the other side. (p. 9)

Kawagley and Barnhardt (1997) relate this story to quantum and relativity theories which suggest that matter is mostly condensed energy and that the world is made up of many interacting forces. Indigenous knowledge makes a connection to this energy and provides pathways for individuals to become part of the energy that surrounds us.

Native science, like the field of energies that connect us, is an

interconnected system whereby those who study it must be familiar with all of its parts. Kawagley notes, "For Yupiaks, scientific knowledge is not segregated from other aspects of daily life and it is not subdivided into different fields of science. To design a fish trap, for example, one must know how the river behaves, how the salmon behave, and how the split-willow of which the trap is made behaves (i.e. one must have an understanding of physics, biology, and engineering)." (Kawagley, Norris-Tull, Norris-Tull, 1998, p. 138)

Cajete (2000) outlines tenets of a philosophy for Native science. It is interesting to keep the Cartesian philosophy in mind while pondering them and to realize the vast contrast in worldviews that would emerge from these differing philosophies. Guiding thoughts of Native science might include the following.

- Native science integrates a spiritual orientation.
- Dynamic multidimensional harmony is a perpetual state of the universe.
- All human knowledge is related to the creation of the world and the emergence of humans; therefore, human knowledge is based on human cosmology.
- Humanity has an important role in the perpetuation of the natural processes of the world.
- Every 'thing' is animate and has spirit.
- There is significance to each natural place because each place reflects the whole order of nature.
- The history of relationship must be respected with regard to places, plants, animals, and natural phenomena.
- Technology should be appropriated and reflect balanced relationships to the natural world.
- There are basic relationships, patterns, and cycles in the world that need to be understood; this is the proper role of mathematics.
- There are stages of initiation to knowledge.
- Elders are relied upon as the keepers of essential knowledge.
- Acting in the world must be sanctioned through ritual and ceremony.
- Properly fashioned artifacts contain the energy of the thoughts, materials, and contexts in which they are fashioned and therefore become symbols of those thoughts, entities, or processes.
- Dreams are considered gateways to creative possibilities if used wisely and practically.

(p. 65)

This philosophical ideal tells of the Native relationship to the natural world, and Native science is the outward expression of that relationship. As an ideal, it is something to be sought. Native people, like any other, are not perfect and are in different stages of attaining this ideal. They must work each day toward it with a good mind. Native science is an ongoing and dynamic relationship with nature that is based on traditions of holistic participation. Cajete (2000) states, "it is the philosophical ideal that a society attempts to emulate that forms the focal point for its creative evolution and development." (p. 83)

Since we are now collectively facing a global crisis in our relationship with nature and each other, it would seem that following the ideal of Native cultures, which encompasses thousands of years of experience in creating harmony with their environment in order to survive, would be a journey worth taking toward a sustainable future.

Science's Place in the Great Scheme of Things – The Story Changes

It is difficult to get a view of science and its effect on our world when we stand within the culture that has been defined by its parameters. A story by Dr. Stan Wilson (1993) helps to see beyond science's boundaries.

> As an Indigenous American learning to use the tools to conducting sciences I feel much like I am in a birch bark canoe trying my best to keep from being swamped and then dragged along in the monstrous wake of the passing great ship American Hegemony. While I am busy steadying my canoe I am trying to send a message to those at the controls of the great ship. I know that smoke signals won't work especially in a canoe made of birch bark. So I turn my lap-top computer with its warning battery power sources to send messages to those on board who may be surfing the net. One of the messages I send is actually one which my deceased father had given me when I was quite a bit younger. We were out on the trap-line at that time and I think he may have picked up from my body language that I was impatient to get back home to my buddies back on the reserve. The bush was his home and

he was relaxed while he was out there. So, I suppose sensing my anxiety to get things finished quickly, he put his hand on my shoulder, looked me in the eye, and said something like the following to me. It doesn't really matter at all that much if you go with haste and great speed or if you go calmly and slowly because you will arrive at eternity at exactly the same time. I've remembered that quite often when I become aware of my impatience to get things done.

Those folks on board the great ship would do well to keep that in mind as well. They don't need to keep the power on its maximum threshold of performance continuously. Doing that puts undue stress and strain on the infrastructure of the great ship and unnecessary prolonged stress has a way of revealing any weakness in the structure. But is seems that folks on board are too preoccupied with the wonders of the discoveries of the voyage to take any notice of messages coming from outside their contained environment. So the great ship American Hegemony proceeds on its way scooping up whatever natural resources it needs for its progress, processes them for its own uses, and dumps the waste behind it. So there's all this garbage left in its wake. If the left-overs were harmless and bio-degradable it wouldn't be such a big problem. However, an accumulation of toxic waste could reach a critical mass at which point disastrous consequences could be triggered.

Meanwhile, back on board the great ship, those who are concerned with the security of the vessel have been developing ways to protect themselves from an unseen future enemy even to the extent of developing deadly pathogens to be used against the imagined enemy just in case. Well, if the ship ever founders like the Titanic – we can only try to imagine the catastrophe that will ensue. But there is no concern the captain tells us because they have everything under control because they have systems of monitoring and assessments in place. But my observation from my flimsy canoe is that those systems of analysis they employ are not unlike mirrors they have stuck onto the outside of the ship, like rear-view mirrors on an automobile, and reflect mostly their own image of the ship greatly admired by everyone on board. They even turn the mirrors outward but they cannot see anything in their instruments and thus believe that it is nothing to worry about. Another message I am wanting to send to those on board is that we need alternate ways other than using only mirrors for analyzing and assessing our human conditions. One of these ways is to look to our Indigenous American ancestors who were able to develop ways of thinking about their place in the environment which respected all forms of life while creating systems which took care of many people.

(p. 1)

Cobern and Loving (1998) describe this cultural hegemony of science as

scientism, when science is used to dominate the public square as if all other forms of knowledge were of lesser value. Our culture places natural sciences at the pinnacle of the epistemological pyramid while social sciences take their place under the pinnacle but above other knowledge domains at the pyramid's base.

They cite examples of scientism in the views of scientific institutions that reveal much about the superior status these organizations feel they hold.

> The National Academy of Science out of fear over religious incursions in school science issued this statement:
>
> In a Nation whose people depend on scientific progress for their health, economic gains, and national security, it is of utmost importance that our students understand science as a system of study, so that by building on past achievements they can maintain the pace of scientific progress and ensure the continued emergence of results that can benefit mankind. The International Council of Scientific Unions (ICSU) endorsed a similar perspective in the 'Proposed ICSU Program on Capacity Building in Science' (ICSU, 1996). The document epigram equates 'the global gap of well-being' and 'the global imbalance of science and technology development.' The ICSU intends to demonstrate to the world that having the capacity to understand and use science is economically, socially and culturally profitable. Indeed, the very habitability of the planet will depend on global popular consensus. As such, the spread of scientific culture, of scientific ways of thinking, and of knowledge is tied to the fate of humanity.
>
> (Cobern and Loving, p. 11)

Considering these examples in terms of the current global crisis emphasizes the impact that scientism has had on our world. In the first example, the stress placed on maintaining the pace of scientific progress to benefit mankind would be like continuing the pace of the great ship American Hegemony regardless of the costs to our environment or society.

The second example demonstrates that those leading the way at the pinnacle of science are hoping to take over all of the cultures of the world to seal the fate of humanity. I have to agree that the spread of scientific culture is tied

to the fate of humanity; the current global crisis is a strong indication of this impending fate.

It is my hope that when the scientific way encounters other cultures it will allow the wisdom of those cultures to permeate it as MacIvor (1995) describes.

> Throughout the world, different cultures have evolved unique ways of perceiving and interacting with the natural world. Islamic science is guided by humility, respect, and recognition of the limits of science; respect and spirituality are key to Maori science; harmony with the natural world is central to many African cultures; and a love of nature is inherent in traditional Japanese science.
>
> (p. 80)

Fortunately there are many scientists who have come down from the pinnacle and are willing to look over the ship's side to see the birch bark canoes below. David Suzuki is one of those scientists and his words best describe what he views as he peers over the ship's side.

> As a practicing scientist about fifteen years ago, I began to realize that if Western science really could deliver the promised benefits for humankind, the quality of human life should have vastly improved during the 1960s and 1970s, as science grew explosively. Yet we know that in spite of impressive developments in space travel, nuclear power, telecommunications, genetic engineering, and computers, life has become significantly better only for a small – and diminishing – proportion of the world's population. Even among this privileged minority – the 20 percent of humankind who live in the industrialized nations – immense problems of economic disparity, malnutrition, prejudice, alienation, loneliness, violence, poverty, and drug abuse have increased rather than diminished.
>
> But the rapid and catastrophic degradation of the planetary biosphere has been the main catalyst for a radical reassessment of the power and limits of scientific insight and application.
>
> (Knudston and Suzuki, 1992, p. xxiii)

The power and limits of science are most evident in the lives of Indigenous people, especially those who live in industrialized nations under third world conditions. As Colorado (1988) notes, "scientists have disclaimed any

responsibility for the failure of their craft to positively impact native lives or to facilitate the recognition of our science." (p. 61)

Suzuki (1997) tells two interesting stories that demonstrate the limits of scientific knowledge. First, he tells of a visit to the Amazon rainforest where he met with three frog scientists. He was impressed with their knowledge and ability to identify and find frogs. He asked one of the scientists about a plant and a bird that they encountered on their walk and he replied, "Don't ask me, I'm a herpetologist". He compared this experience to when he asked a Kayapo Indian in Brazil about the birds, plants or insects in their environment and they were always able to name and tell about them. He concluded that, with scientific expertise being so narrowly focused and specialized, is was almost impossible to comprehend the interconnectedness of life.

A second example comes from his time spent with the !Kung in the Kalahari Desert of Botswana. He camped with the people and was amazed by their ability to "read" game trails, their knowledge of pharmacology and their ability to survive in an environment that would have finished him off in days. He tells about trying to crack roasted mongongo tree nuts with a stone. The people cracked these nuts with ease, but when he tried it was impossible, and he had the people crying with laughter as he tried. He noted that the people were unaware of his Ph.D. and its significance, but they did realize that he was totally inept at even the most fundamental of survival skills.

Knowledge based on only one view limits our abilities to perceive all of our world. Pavlik (1997), in his review of spirituality, traditional knowledge, and western science, states that the scientific method, in its search for truth and knowledge, limits its findings to only that which can be proven by observation and experimentation. This limits even the existence of spirit since it cannot be proven through experimentation. He says severe limitations on intellectual thought occur when such self-imposed boundaries are used.

Sheldrake (1988) also finds limits in the mechanistic view of modern science when he compares it with the holistic view of postmodern science.

> If the universe is like an eternal machine, and all organisms within it are more or less complex mechanistic systems, then all their spontaneity of evolution and behavior must ultimately stem from blind chance...But if the universe is more like a living organism, whose regularities depend on habits, mechanistic phenomena become a limiting case, of the idealization of which classical physics took as its model.
>
> (p. 86)

This is in keeping with Bohm's view, "The great strength of science is it is rooted in actual experience; the great weakness of contemporary science is that it admits only certain types of experience as legitimate." (Keepin, 1993, p. 3)

Vine Deloria Jr. writes about Native Americans and the myth of scientific fact in his book, Red Earth White Lies (1997) He uses an interesting analogy to describe the limits of science.

> Western science today is akin to a world history which discusses only the Mediterranean peoples...We are living in a strange kind of dark ages where we have immense capability to bring together information but when we gather this data, we pigeonhole it in the old familiar framework of interpretation, sometimes even torturing the data to make it fit Discordant facts and experiments are simply thrown away when they do not fit the prevailing paradigm.
>
> (p. 211)

Deloria maintains that data are discarded for several reasons. First, data that is individual-specific cannot be reproduced, therefore it falls outside the parameters of the experiment and of science itself, so it is labeled anomalous. As well, it may require that non-rational and partially subjective conclusions be drawn which would place the scientist outside of the parameters of science. Non-measurable data would not use mathematics as the sole criterion of measurement and verification - a basic foundation of Cartesian philosophy and science itself.

However, Deloria (1992) believes anomalous information is slowly making its way into western science, citing the use of controlled fires to ensure the fertility of forests, the use of dreams in psychotherapy, and the effect of music on plant growth. He notes that these observations have been an integral

part of tribal knowledge, but that when they are discovered by non-Native scientists it is seen as an exciting breakthrough. He also notes that this information is mere child's play, since it is information that traditional people would have expected children to learn as a matter of course.

Not only is science limiting, but it can also create harm. Ermine (1995) suggests that fragmentation is detrimental to Aboriginal epistemology. When Aboriginal children are subjected to the dogma of fragmentation it harms their capacity for holism and impedes their progress toward inwardness.

Kawagley and Barnhardt (1997) discuss the wonderful capacity that mathematics and science have as tools to open new discoveries in our world. But they also see that they carry inherent values, but that these values are often usurped by economic imperatives, and short-term expediency, efficiency, and cost-effectiveness. This western tendency to want to control nature leads to confusion and a feeling of detachment from the life force and the attendant sense of connectedness.

This disconnectedness from nature leads to much of the harm evident in our environment and our society. It has been the basis for many atrocities committed in recent history, all in the name of science. As Pavlik (1997) reminds us, "it was scientists who injected blacks with the syphilis virus at the Tuskegee Institute, and it was also scientists who pulverized the heads of monkies in a laboratory at the University of Pennsylvania – all in the name of advancing knowledge. In reality, ethics have never been one of western sciences stronger suits." (p. 287)

The power and control that science wields with its underlying motives have caused many Native people to be wary of sharing their traditional knowledge. The debates have turned into issues of cultural and intellectual property rights as the expropriation of cultural concepts, ideas, knowledge of plants and sustainable living systems have become commodities. Willie Littlechild, legal counsel for the Maskwachiys Cree, is working to get a United Nations Declaration on Tribal Leadership, that would protect cultural property. He gives an example of a pipe used in the signing of Treaty six (along with a

pictograph used in the signing) that had been lost for one hundred years, that recently came up for auction in London. He argues that if certain articles of the Declaration had been in place, they could have reclaimed their cultural property. (Bundy, 2001)

Indigenous people are reluctant to participate in research as it is currently practiced since it denies the existence of their knowledge, continues to actively assimilate them and competes with the worldview they represent. (Smith, no date)

Rigney, from the Yunggorendi First Nations Centre for Higher Education and Research in South Australia, argues that First Nations Peoples are the most studied people of the world. Indigenous people have been prodded, measured, tested and compared by explorers, medical practitioners, intellectuals and travelers all in the name of research. During a 1997 conference call, Rigney told our "Exploring Indigenous Methodologies" class a disturbing tale of research conducted on his people. He said that every orifice of the men, women and children of his community had been measured by medical practitioners as part of a study.

The academic qualifications and careers of many have been achieved through the acquisition and control of Indigenous knowledge. Both Smith (no date) and Rigney (1997) speak of the need to decolonize methodologies so that research does not harm Indigenous communities, but helps them achieve balance their own way. Rigney states, "Indigenous people now want research and its designs to contribute to the self determination and liberation struggles as defined and controlled by their communities." (p. 1)

This emphasis on resistance to scientifically based research is a reaction to science's inherent dominating and controlling motivations. Cajete (2000) suggests that an equal playing field is required if there is to be an information exchange between practitioners of Indigenous and Western science.

Perhaps Deloria (1997) offers the greatest insight into the creation of this level playing field when he states, "It's common to hear people say you have to decolonize your minds. But if you're decolonizing your mind, why are you using

the opressor's technical language to do it?...Using such technical language seems to say you are in a state where you accept the colonizer's premises." (p.22)

It would seem that Indigenous knowledge needs to be recognized on its own terms and not in comparison with other knowledge forms.

Another discrepancy in knowledge systems whereby science dominates the debate can be found in Traditional Ecological Knowledge (TEK). Ecologists define TEK as knowledge about nature that Native people have acquired through long years of experience with their natural environment, and that has been vital to their survival. Indigenous people are wary of having their knowledge incorporated into ecology, since as an extension of science it ignores spirit. It also ignores the interaction and needs of societies and cultures within ecosystems. (Kawagley, Norris-Tull, Norris-Tull, 1998)

An example of an integrated approach to ecosystems comes from Winona LaDuke, an Anishinabeg of the White Earth Reservation and a Harvard graduate.

> My children's grandfather, who is a trapper, lives on wild animals in the wintertime. When he intends to trap beavers, he reaches his hand into a beaver house and counts how many beavers are in there...By counting, he knows how many beavers he can take. Of course, he has to count only if he hasn't already been observing that beaver house for a long time. This is a very sustainable way to trap, one based on a kind of thorough observation that can come only with residency. Further, I suggest that this man knows more about his ecosystem than any Ph.D. scholar who studies it from the university.
>
> (Hannum, p. 30)

Cobern and Loving (1998) suggest, in a discussion of integrating TEK into the school curriculum, that the question of reliability is always part of the debate and that traditional knowledge inevitably gets measured on Western science's terms. With inclusion, TEK would lose out as a distinctive form of knowledge and would become a "token" of cultural inclusiveness rather than a serious participant in the discourse of science. They suggest that including TEK as part of the science curriculum would acknowledge the legitimacy of science

as the gatekeeper and not address the fundamental problems that led to Indigenous knowledge being devalued in the first place.

LaDuke agrees with the autonomy of TEK and the strength of its wisdom and the people who practice it.

> We who live by this knowledge have the intellectual property rights to it, and we have the right to tell our stories ourselves. There is a lot to be learned from our knowledge, but you need us in order to learn it, whether it is the story of my children's grandfather reaching his hand into the beaver house or of the Haida up on the Northwest coast, who make totem poles and plank houses. The Haida say they can take a plank off a tree and still leave the tree standing. If Weyerhaeuser could do that, I might listen to them, but they cannot.
>
> (Hannum, p. 36)

LaDuke contends that TEK is essential for future survival and, like Cajete (2000), sees that a relationship between the two knowledge systems must be crafted. But traditional knowledge must not come under science, it must stand on its own based in its own epistemologies.

Deloria (1992) exposes one of the difficulties in speaking about tribal knowledge as the tendency for people to find traditional teachings that correspond to western beliefs so that the traditions can be validated. He asks some revealing questions, "Why does the correspondence necessarily validate the tribal insight rather than the other way around? Why do we think that western science is the criterion of truth and accuracy? Why is tribal knowledge described as striving on an ad-hoc basis to rival the information obtained by western science?" (p. 15)

Scientists through their probing of the universe and the earth have begun to realize the magnitude of its size, complexity, and age. This is leading to an understanding of the universe, not as a simple mechanical process, but as a "creation in grand process". We, and the planetary systems of which we are a part, are a momentary part of the ongoing creation of the universe. We are an eddy in the ocean of creative process that began more that fifteen billion years ago. (Cajete, 2000)

It is within this greater perspective that Cajete places traditional knowledge so that it can be understood.

> Native science is the collective heritage of human experience with the natural world; in its most essential form, it is a map of natural reality drawn from the experience of thousands of human generations. It has given rise to the diversity of human technologies, even to the advent of modern mechanistic science. In profound ways Native science can be said to be 'inclusive' of modern science, although most Western scientists would go to great lengths to deny such inclusivity.
>
> (p. 3)

The paradigm shift in our worldview is nearing a way of thinking and being that will allow traditional knowledge to be accepted and practiced on its own terms. The knowledge needed for survival on this planet will not come through the narrow perspective of the paradigm that created the harm, but rather through a broader vision that is inclusive of all time and space. Until this paradigm reaches a point of acceptance, the knowledge will remain protected. The protection will not come as a result of the old paradigm's intellectual property laws, but with the acquisition of knowledge about the keys that Colorado (1998) and Kinunnwa (1997) speak of.

These keys are strict protocols governing the access to traditional knowledge which cannot be found in the laws of the non-Indigenous world or even the rules of Indigenous culture (although these cultures are the pathway to the protocols). The protocols are in line with the laws of the universe and it is only with a good mind and a good heart that they can be learned about from their keepers, the Elders. Gaining access requires a paradigm shift within the individual and it is not an easy process, as explained by Couture (1991).

> The practical requirements of establishing and maintaining a relationship with Elders are not readily perceived. First of all, at the level of individual need and change, much time and patience are required. There are no shortcuts to attitudinal and spiritual change, no possible end-runs around phases of inner change. A complete and enduring commitment is required. Secondly, the 'return' is not only to 'primal roots', to the living core of the Tradition itself, but is conditional on personal achievement, so as to arrive at presenting to the world an authentic mode of living. And, it is not an easy matter.
>
> (p. 211)

I feel that as more people come to a place where they live a life that is guided by a good mind and in harmony with all the relations, avenues for learning will open for many. Deloria (1992) notes that as tribal wisdom becomes an intellectual discipline it will be articulated in a variety of forms and not just in the language and concepts through which tribal Elders are accustomed to expressing themselves.

The knowledge will wait until the people are ready as it has since the beginning of time. Lionel spoke of what Cajete (2000) reiterates, "according to some philosophers, Indigenous and otherwise...knowledge is never really lost; it comes into being when it is needed, and leaves when it is no longer needed or properly used." (p. 9)

THE STORY OF BALANCE

The Rationale for Balance

I remember listening to a lecture given by David Suzuki at the University of Alberta in 1999. He spoke about our obsession with technology, change and growth within the past one hundred years. Although he recognized the many positive advances made, especially in the field of medicine, he also pointed out the realities of continuing with such a growth pattern and used a vivid example of amoebas. He said when amoebas are isolated within a test tube they continue to divide until all of the resources in their environment are used up and they perish.

He drew a parallel between our culture of change and growth and the amoeba. I think of my mother, born in 1922, and the changes she has seen in her lifetime. She was born in the family's mud insulated farm home and she remembers the oxen being traded for horses, the horses being traded for a car, and the wonders of electricity coming to the farm. She was one of the first women in her area to be educated beyond high school and during her teaching

career she utilized the technology of radios, televisions, video recording machines, and computers, and watched the first man walk on the moon with her grade two class. She has an unconditional belief in western medicine, as she watched it cure the diseases that killed her childhood friends. Still, with the increase in violence and the breakdown in cultural and family values, she yearns for the simpler life. In terms of human history, one hundred years of technological change is a drop in the ocean. Perhaps the current crisis in our world is a sign of the test tube becoming full. My hope is that we have some advantage over the amoeba in that we would choose to come into balance with our environment before we all perish.

Rapid growth and technology are products of the Cartesian view, in that the control of nature and the understanding of its fundamental parts have given way to invention. With objective experimentation came a separation of science from society. Griffin (1998) talks about the disenchantment of science and by this he means that nature was disqualified from all subjectivity, experience, and feeling. He explains, "This disenchanted view means that experience plays no real role not only in 'the natural world' but in the world as a whole. Hence, no role exists in the universe for purposes, values, ideals, possibilities, and qualities, and there is no freedom, creativity, temporality, or divinity. There are no norms, not even truth, and everything is ultimately meaningless." (p. 3)

The decay of our world as a result of our chosen view is evident in the words of Bohm (1988), which are even more pertinent now then they were at the time he wrote them.

> Our entire world order has, in fact, been dissolving away for well over a century. This dissolution has tended further to erode all our basic values on which the stability of the world order must depend. Hence, we are now confronted with a worldwide breakdown which is self-evident not only at the political level but also smaller groups and in the consciousness of the individual. The resort to mindless violence is growing and behind it all is the even more mindless threat of mutual annihilation.
>
> (p.57)

It is the reenchantment of science that postmodern science strives to achieve

wherein values are inseparable. As Bohm (1988) notes, "A postmodern science should not separate matter and consciousness and should therefore not separate fact, meaning and value. Science would then be inseparable from a kind of intrinsic morality, and truth and virtue would not be kept apart as they currently are in science. This separation is part of the reason we are in our present desperate situations." (p.57)

Swimme (1988) suggests that physics, the founder and leader of Cartesian philosophy, is no longer disenchanting science, but providing a new story which finds order in complex dynamic systems and their relation to all levels of phenomena. Capra (2001) outlines the alternatives to the mechanistic view that have existed throughout the history of modern science in the book, The Tao of Physics. Systems theory was rejected in the past, but a strong disproof of the mechanistic view has recently occurred within quantum physics. Bohm speculates as to why the acceptance of a holistic explanation of science has not taken place even though there is such strong speculation. He suggests that the evidence lies in an esoteric part of physics called *quantum mechanical field theories* that is understood by only a few people. Even those who work in the field are dealing with the concepts only on a mathematical level since they believe their understanding cannot go beyond. Further, physicists in other fields have only a vague knowledge of the theories and scientists in other disciplines are even less knowledgeable about them. Science has become so specialized that even other scientists are unable to act on scientific findings.

It would seem even less likely that non-scientists, including our leaders, would be able to understand and interpret the concepts to better our world.

> There are solutions to the major problems of our time, some of them even simple. But they require a radical shift in our perceptions, our thinking, our values. And, indeed, we are now at the beginning of such a fundamental change of worldview in science and society...But this realization has not yet dawned on most of our political leaders. The recognition that a profound change of perception and thinking is needed if we are to survive has not yet reached most of our corporate leaders, either, or the administrators and professors of our large universities.
>
> (Capra, 1996, p. 4)

Cajete (2000) also argues that the mind-set of many people is still firmly vested in the old mechanistic worldview. Therefore, the ambiguity, conflict, and tensions currently being experienced at all levels of modern life are reflections of our inability to reject the present dysfunctional cosmology that no longer sustains us at any level.

In his article, *The Emerging Ecological Worldview*, Metzner (1993) discusses the inability of the current cultural paradigm to adequately deal with the ecological crisis. He holds that the roots of the disaster lie in the attitudes, values, perceptions and basic worldview of the industrial-technological global society that include the pursuit of exploitative, destructive, and wasteful applications of technology.

Both Bohm (1988) and Suzuki (1997) speak of the strong faith of our culture in science and its ability to find a solution to our current crisis. The realization that global warming, ozone depletion, species extinction, and worldwide toxic pollution cannot be solved by the current worldview's application of tax levies, greater efficiency, and recycling is lessening this faith. As Suzuki notes, "we are waking to the dangers of clinging to a faith that science and technology can forever resolve the problems they helped to create in the first place." (p. xxiii)

We are faced with the task of rejecting the path of survival that our culture has sanctioned. Harman (1998) says it best when he states, "Experienced reality does not conform to the 'reality' they taught us in science class; the 'scientific worldview' is not an adequate guide for living life or for managing a society." (p.122)

A new world order is called for by many, including Rasmussen (1993) who suggests that when a reigning cosmology fails, a different or transforming grand narrative needs to be restructured. Bohm (1988) looks to a new type of consciousness.

> I suggest that if we are to survive in a meaningful way in the face of this disintegration of the overall world order, a truly creative movement to a new kind of wholeness is needed, a movement that must ultimately give

> rise to a new order, in the consciousness of both the individual and society.
>
> (p. 59)

Ferre's (1998) image of a garden reminds us of the usefulness of science as a tool. He portrays the world as a complex garden, which needs to be tended, respected, harvested, and loved rather than as a resource pit to be mined or a wilderness to be shunned. He states that when values are reintegrated into our worldview, the task for science will be to "keep the modern tools of analysis sharp in their proper role as tools and to send us back into the Garden to work with respect and caution." (p. 96)

The shift toward the new world order has already begun with the physicists, the deep ecologists, the grass roots community builders and people from all walks of life who are not yet aware that their hearts have been touched so that their minds may move. The time of the light is here and though there are many paths to follow, my experience has led me to the ways of the Indigenous people of the earth and to their traditional knowledge of balance. Others have found the same path and have begun to open the door, not to a new wisdom, but one that has been waiting. Suzuki (1997) explains, "We need a radically different way of relating ourselves to the support systems of the planet. My experiences with aboriginal peoples have convinced me, both as a scientist and as an environmentalist, of the power and relevance of their knowledge and worldview in a time of imminent global ecocatastrophe." (p. xxxv)

My own experience of Indigenous knowledge has taught me how very little I know of another way of being, especially when the parameters of my mind have been set by the culture in which I was raised. The expanse of traditional knowledge may best be understood in Deloria's statement, "I do believe that perhaps only 10 percent of the information that Indians possess is presently in print and available for discussion." (1997, p. xiv)

On the path to balance, perhaps one of the strongest arguments from a western perspective for accepting traditional knowledge on its own terms is its harmonious relationship to the natural world. This relationship is the very

essence of Native science and the role of protecting and caring for the environment are more than an ethic as Colorado (1988) states, "our Original Instructions from the Great Spirit are to protect and nurture the Natural Creations. Thus creations will protect and nurture so that there will be no scarcity." (p. 61)

Martinez (1998) has coined the word kin-centric, as opposed to biocentric or anthropocentric, when describing the relationship between all the members of nature and he speaks of hope for renewal when he speaks of all the relations.

> We are all related, and if we take care of our relatives, they will take care of us. That's why native cultures have ceremonies to renew the world, because we use the world up. We take personal and collective responsibility for the earth's welfare. The Indian ancestor spirits are still here, which is the best proof we have that this land is still healthy enough to be restored. When those spirits go away, the spirit of the land will be dead.
>
> (p. 40)

Though the wisdom comes from an ancient time, its understanding can be applied today since the knowledge is valid in any age. Cajete (2000) speaks of this process.

> If we learn once again to feel, see, hear, smell and taste the world as our ancestors did, we may remember something truly wonderful about nature in humans.
> This does not mean that we should or even can return to the pre-modern, hunter-gatherer existence of our ancestors, but only that we must carry their perceptual wisdom and way of participation into the twenty-first century, where the environmental challenges we face will require a totally different way of living in nature.
>
> (p. 23)

Ermine (1995) explains the way in which knowledge was gained and shared with the community in order to create harmony. He tells of how the ancients would experience wholeness and totality by going inward. The 'Old Ones' would then share their manifestation of the life force on the physical plane by creating community. The people would become empowered through living the customs and the culture, and the community would become paramount since it was the repository and incubator of the tribal knowledge. The

community's elements became part of a whole flowing movement and it modeled the inward wholeness and harmony. Of course, the community included all of the relations of nature. Ermine takes the stance that, "Aboriginal people have the responsibility and the birthright to take and develop an epistemology congruent with holism and the beneficial transformation of total human knowledge." (p.103)

Ermine (1995) describes a very different relationship with the environment than western science is used to. It is important to remember that since Native cultures traditionally interconnected with nature in order to survive, their collective experience both historically and culturally is profound and sophisticated. Their philosophy of ethical participation may be the only ideal that can bring all of us toward a sustainable future. (Cajete, 2000)

Colorado states that Native science provides the process where by Native people complete the relationship with non-Native people, which is required by its philosophy. Perhaps, considering the impending global crisis, it is time for non-Native people to understand the importance of traditional knowledge. LaDuke states it best when she says, "Indigenous peoples have lived sustainably in this land for thousands of years. I am absolutely sure that our societies could live without yours, but I'm not so sure that your society can continue to live without ours." (Hannum, p. 29)

The most important element in the move toward balance is the Native people. Indigenous authors have spoken similar words to Martinez's for years, "Native people have taken care of the natural landscape for thousands of years. If we lose their wisdom, we lose the land as well." (1998, p. 38)

Some from the western perspective are listening and trying to impact others to stop and listen. Suzuki (1997) talks about the final stages of an assault by conquerors on Indigenous people as they try to exploit their land and resource base, and how this destruction is occurring with frightening speed. He reminds us that, "Once these people have disappeared, their body of priceless thought and knowledge, painstakingly acquired over thousands of years, will disappear forever." (xxviii)

Cecil King portrays the significance of the impending loss through a story he told at a conference for directors of Native teacher education programs held in Edmonton in November 1998.

> I had a dream that all the people of the world were together in one place. The place was cold. Everyone was shivering. I looked for a fire to warm myself. None was to be found. Then someone said that in the middle of the gathering of Indians, what was left of a fire was found. It was a very, very small flame. All the Indians were alerted that the slightest rush of air or the smallest movement could put the fire out and the fire would be lost to humankind. All the Indians banded together to protect the flame. They were working to build the fragile feeble flame. They added miniscule shavings from toothpicks to feed it.
>
> Suddenly, throughout the other peoples, the whisper was heard. 'The Indians have fire'. There was a crush of bodies stampeding to the place where the flame was held. I pushed to the edge of the Indian circle to stop those coming to the flame so that it would not be smothered. The other people became hostile saying they were cold too and it was our responsibility to share the flame with them. I replied, 'It is our responsibility to preserve the flame for humanity and at the moment it is too weak to be shared but if we all are still and respect the flame it will grow and thrive in the caring hands of those who hold it. In time we can all warm at the fire. But now we have to nurture the flame or we will lose the gift.'

THE PARADIGM OF BALANCE

In order to "come to know" from a Native science perspective, one must first understand the culture/worldview/paradigm of Indigenous people. Kuhn (1996) defines a paradigm as an all absorbing way of working, thinking, communicating, and perceiving with the mind. In order for a shift to occur in our society's way of being, we must first understand that other ways of perceiving the world exist and we must be open to experiences of the heart that can help our mind move.

According to Leroy Little Bear, a Native paradigm is "comprised of and includes ideas of constant motion and flux, existence consisting of energy waves, interrelationships, all things being animate, space/place, renewal, and all things being imbued with spirit." (Cajete, 2000)

At the root of this paradigm is a cosmology that speaks of natural democracy. The first cosmologies of Indigenous people were based on the perception that the spirit of the universe resides in the earth and the things of the earth, including humans. Since people were a part of their environment on an equal basis with all other things they were open to all the possibilities that might manifest through the natural world. Their culture was determined by the cycles of nature, the behavior of animals, the growth of plants, and the interdependence of all things in nature. Their culture, including ethics, morals, spirituality, economics, and politics, were not just an expression, but a way of "being", interconnected with nature (natural democracy). (Cajete, 2000, p. 52)

Fundamentally, Indigenous peoples' beliefs lie in natural laws. Not laws made by man, but those of nature and the universe, which are superior and to which we are all accountable.

There is a knowing about a mysterious force that connects all of existence in the outer and inner worlds. This force was the focus of the Old Ones' guidance and it served as the foundation of Native epistemology.

> Aboriginal people found a wholeness that permeated inwardness and that also extended into the outer space. Their fundamental insight was that all existence was connected and that the whole enmeshed the being in its inclusiveness. In the Aboriginal mind, therefore, an immanence is present that gives meaning to existence and forms the starting point for Aboriginal epistemology.
>
> (Ermine, 1995, p.103)

Spirit

Knowledge has a context, and for Indigenous people this context is shaped by spirit. (Meyer, 1998) Lionel (1997) tells us that Indigenous knowledge is a way of being rather than a practice of religion. The knowledge and use of energies (spirit) is not only for special people, but for anyone who has their skills tuned and who is respectful. Using energies has come under the parameters of spiritual, but for non-Natives that word has been misinterpreted.

He also acknowledges that Elders know about atoms, sacred colors and spirit and that they talk about metaphysics and how energy moves.

> The connection between spirit and energy is made by Leroy Little Bear.
>
> What Native Americans refer to as 'spirit' and energy waves are the same thing. All of creation is a spirit. Everything in creation consists of a unique combination of energy waves. In other words, what appears as material objects is simply the manifestation of a unique combination of energy waves. Conversely, all energy wave combinations do not necessarily manifest themselves in terms of material objects.
>
> (Cajete, 2000)

Since all matter, including humans, is made from the same energy, it becomes evident that all things in the universe must be animate, as we are. LaDuke (no date) points out that Native languages reflect the animate element of all things in nature. She continues to explain that if most things are perceived as alive, then they also have spirit and are able to stand on their own. This means that plants and animals choose to give of themselves, as is the case with hunting. She speaks of the offering of tobacco when a plant is picked or an animal killed. It is not the hunter's skill that gets the animal, but rather the honorable way in which the animal is approached and the respect shown by the hunter in offering tobacco to the spirit of the animal for giving of itself. An example of this comes from Lionel as he describes a moose hunting trip with an Elder.

> Lionel awoke early and the Elder was already up and prepared for the hunt. Lionel was impatient to start, but the Elder insisted they eat a large meal and pray before they started. The trip took them by boat down a river. Lionel was watching the land and the Elder for any signs of what he should do next. The Elder eventually cut the engine and told Lionel to get ready because the moose would be waiting on the shore around the next bend. Rounding the bend, they saw the moose that stood still watching them until they came close enough to shoot and kill it. The Elder then offered tobacco and skillfully cut and prepared the moose for transport home. After, Lionel asked the Elder how he knew the moose would be there. The Elder replied that they had eaten a large meal so that they would not be hungry when they were hunting since hunger would warn the animal's spirit that they were coming. Also, he had prayed and respectfully asked the moose to give of itself; and in these prayers the

> Elder and moose discussed the ancient promises and made the agreement.

Balance/Renewal

An important part of understanding a Native paradigm is the emphasis on balance. Lionel reminds us that nature created the traditions, not man, since the two leggeds came after and had to learn how to come into harmony with nature. Those who live the traditions are able to move from strength to strength, surviving circumstances that would demoralize others. Their value system allows them to maintain a healthiness (balance). Ceremonial structure gives them a way to regain a healthy way of being (rebalance, renewal).

Most ceremonies are about the restoration of harmony. It is the intent of the Native way of being to restore, and then to retain, balance. It is important that when one takes, one must give back. The natural law teaches to take only what one needs and to leave the rest, otherwise an imbalance will occur that will violate balance and continued harvesting cannot be assured. (LaDuke, no date, p. 26)

In the understanding that life, and all things that support life, are renewable, comes a liberation. There is always hope for the restoration of balance, whether in an individual's life or society as a whole.

The sacred circle symbolizes cyclical patterns within which humans can understand purpose and meaning through renewal and balance.

> This symbolism represents unity, interdependence, and harmony among all beings in the universe, and time as the continual recurrence of natural patterns...The symbolic sacred circle is divided into four directions (north, south, east, and west) representing the four races (white, black, red and yellow), the four aspects of humanness (emotional, physical, mental and spiritual), the four cycles of life (birth, childhood, adulthood, and death), the four elements (fire, water, wind and earth), and the four seasons (spring, summer, fall, and winter). Wholeness in the cycle of the year requires movement through all the seasons; wholeness in life requires movement through the phases of human life; and wholeness in human growth requires the development of all aspects of humanity.
>
> (Regnier, p. 316)

Rupert Ross (1992) explains the depth of the principle of balance by contrasting paradigms. In a non-Native paradigm, the path of life is a linear one in which we hold the conviction that there will always be a better tomorrow and we will never walk the same trail as our parents or know the path of our children. But in the Native paradigm life is always the same path. Native people walk in the steps of their ancestors and know where their children will travel. Rather than moving ahead from where others have left off, they retrace the path of past generations. Like a relay race that never ends the old and young generation would run together until one slows down while the other speeds up. Each would pass the same landmarks and see, hear, and feel the same experiences.

This would create a very different perception of life. There would be no need to leave a monument for those coming to remember past achievements since all would see the same place and know it through generations. The track would instead become sacred as it would give sustenance to those before memory and those in the infinite future. Ross describes the imperatives for Native people living in balance during traditional times.

> Life's challenge lay in observing and understanding the workings of the dynamic equilibrium of which they were a part, then acting so as to sustain a harmony within it rather than a mastery over it. One aspired to wisdom in accommodating oneself to that equilibrium, and that pursuit quite clearly promised unlimited scope for exploration and self-development.
>
> (p. 92)

Inwardness

It was in the self that Native people discovered great resources with which to deal with the challenges of life. The self was also a rich source of information about the nature and origin of knowledge. Ermine (1995) contends that, "Aboriginal epistemology speaks of pondering great mysteries that lie no further than the self." (p. 108)

The students in the "Researching Indigenous Methodologies" course, who live the paradigm, spoke of the inward journey to knowledge.

*It is about the inner journey. We are beginning to open doors. We have to go back to our inner thinking and take supplies and leave behind the rest and go on with that. My Indian-ness, respect, is inside me.
*Your belief has to come from internally. Your research is an intuitive belief.
*Non-Indigenous research is being inside and trying to look out while Indigenous research is being outside and trying to look in.
(Data, Appendix A)

The self is grounded in the silence of the universe and gives an individual the sense of belonging to a tribe, the universe, and something greater than oneself. The still place of balance within ourselves and the place of greater knowing can be reached through prayer. Prayer is a medicine that touches where life begins, and exists within, without, and between our relationships. (Colorado, 1988; Kawagley and Barnhardt, 1997)

An understanding of the importance of the connection of the inner space with the physical world comes from Ermine (1995). "Only by understanding the physical world can we understand the intricacies of the inner space. Conversely, it is only through journeys into the metaphysical that we can fully understand the natural world." (p. 107)

Culture/Tradition

The Native paradigm began by establishing a relationship with nature, which then became the traditions and the natural laws. Lionel makes a distinction between traditions and culture, which is a result of the traditions. He says that culture is how we live and adapt to our physical lives, whereas tradition is the ways and means by which we keep that culture strong in healthy ways.

Eber Hampton spoke of the distinction in the Indigenous Methodologies course.

*I worked with Lionel in spirit camps and one day he told me what an old man had told him, 'Our culture is killing us – we have to get back to our traditions.' Lionel told me that our culture is just the way we live. It is in our brains. It is what we have learned since birth and it changes everyday. Traditions are in every cell of our bodies. It is what we have

> learned since we have been two leggeds. It is not about race or gender but an awareness of the inner connection of all things.
> *I was building a deck and my two sons were there. There were cottonwood trees around and the fluffy seeds were floating down. My son caught one and brought it to me. We looked for the seed and it was not big. My son said, 'that tiny seed knows how to be a cottonwood tree?' The tree is like Lionel's description of tradition – it is in every cell of our bodies.
> *Some say Chickasaw culture is dead and it saddened me. Where did culture come from? One place it came from was the Great Spirit, nature, experience and the Elders and ancestors. I felt cheered up because I realized that all of that is still here. The source of the culture is still here. It is not important to preserve your traditions, it is important to allow it to preserve you. I learned the more I practiced what I knew the more I learned. I am far from coming to the end of that learning. To the extent that I follow the traditional practices I survive and I learn more. They preserve me. That is how it has been for me.
>
> (Data, Appendix A)

Cajete (2000) draws a similar conclusion when he describes the diversity that exists within culture as distinct peoples experience the world in distinct places, and evolve to define themselves and their surroundings in distinct languages. He also describes the unity in this diversity since, as humans, we share a species-specific experience and knowledge of nature. He recognizes that humans share the experience of nature with other species, but that our unique physical biology gives us like perceptions. This vast ocean of direct human experience (biological awareness) lies below all cultural mediation and is the basis of tradition.

McLuhan in the book, The Way of the Earth: Encounters with Nature in Ancient and Contemporary Thought (1995), illuminates the similar beliefs of the relationship with nature held by six cultures: Aboriginal Australian, Japanese, Greek, African, South American, and Native North American. Lewis Cardinal suggests that the traditions are still evident in each of the continents, within the structures and foundations of the Indigenous nations. (Transcription, 2001, p. 5)

Humility and Respect for Nature

To understand the respectful relationship that exists between Native people and nature one must look beyond the romantic notions. Pierotti and Wildcat (1997) are frustrated by the naïve understanding that non-Native people hold of the profound relationship between clan members and nature and the often uncomfortable consequences that may arise from these relationships. They explain that the creation stories tell of how plant and animal persons existed before humans, therefore, they are Elders and as such are teachers and respected members of the community. Being of the Wildcat, Pelican, Deer, or Wasp clan means that they are kin to these other persons and as relatives they have an ecological connectedness that has been culturally and ceremonially acknowledged. Values are learned from fellow community members and Native people are well aware that political and moral life include the members of their clan and of nature.

Indigenous people took extensive precautions to protect their relatives, the animals and plants that they depended upon for their existence. They relied on the shamans, who were the intermediaries between the spiritual and natural worlds, to inform the people of what actions were appropriate when dealing with the earth. The people developed a low-impact technology that used only natural materials that were ultimately recyclable, and insured that tools and any clothing, shelter, or food was prepared with as little harm to the natural and supernatural worlds as possible. (Kawagley, 1998)

Even the language conveys the respect the people hold for the land and their relatives. LaDuke (no date) defines the word *minobimaatisiiwin* in her Anishinabeg language as the practice of living in harmony with the natural law. It tells how to behave in relationship with all things, animate and inanimate, on the land and it is what you strive toward, both individually and collectively as a society.

It is difficult to imagine living within this paradigm and making daily decisions, when we in the west are so set in our ways. The clarity of this point of view is best described in the reply given to Suzuki when he asks Paiakan, his

Kayapo friend, if he worries that his people may be tempted by the trinkets of industrial society to harvest more from their forest home than they need.

> 'I have three daughters. I don't know whether they will all reach maturity and have families. Perhaps one or two will, or I may be fortunate and all three will. I have no control over it...I can plant fifty mahogany seeds, and they will sprout and grow. Chances are, only a few will survive to become trees. I have no power to affect that. Nature does. The forest is controlled by Nature, and we would never be so greedy or stupid as to take too much.'
>
> (Knudston and Suzuki, 1992, p. xxxiii)

Humility and respect are evident in Paiakan's words along with common sense. It is interesting to realize how our paradigm has strayed so far from nature that we are no longer able to act on common sense.

Interconnection of Thinking

An Indigenous theory of relatedness demands that each and every entity in the universe seeks and sustains personal relationships. (Colorado, 1988)

Insight into the extent of this relational system can be gained in the words of Shawn Wilson, a First Nations graduate student.

> The difference between [the] dominant paradigms and an indigenous paradigm is that all those dominant paradigms all come from the foundational belief that knowledge is an individual thing. The researcher is an individual in search of knowledge. This knowledge is something that is gained by an individual. Whereas an Indigenous paradigm comes from the foundational belief that knowledge is a relational thing. Knowledge is shared with all of creation. It's not just interpersonal relationships, not just with my research subjects I'm working with, but it's also with all of creation. It's with the cosmos, it's with the animals, it's with the plants, so that we share those things. So it goes beyond this idea of individual knowledge to relational knowledge.
>
> (Transcription, 2001, p.13)

The metaphors used by First Nations to describe their realities reveal the interconnectedness.

> *The metaphor of a net is elegantly simple, but can go very deep. In Hawaii we would use the image of a net to do research rather than a machine. As we discover things we get connected to our environment. If it is broken you have to find a means to restore and reconnect it. It catches and holds things.

> *A metaphor for my people would be the bush trails. If you look down on trails it would come together as a web does. It is difficult finding your way on these trails and I admire how the people know them so well. The people don't let the trails get over used and they make new trails when it is needed. This is good for me because it helps me find my own power in my journey. It is up to me to break my own way. There is no set path.
>
> (Data, Appendix A)

The relational accountability not only extends to all of creation in the present time, but cares for creation over time. Tonya Gonnella Frichner, Onondaga and president of the American Indian Law Alliance, speaks of seven generations.

> Our original instructions from the Creator tell us how we must live and that we are responsible for the seven generations to come. Our ancestors, seven generations back, fulfilled their duty to make sure that today, our Nations and our way of life still exist. Now it is our turn. We need to take responsibility for the next seven generations and make decisions understanding the effect on these generations to come.
>
> (Bundy, 2001, p. 48)

The consciousness prevalent in the Indigenous paradigm is an understanding that nature *is* reality. There is a greater consciousness that transcends both the self and its ego. Cajete (2000) explains that achieving this consciousness comes about through culturally conditioned "tuning in" of the natural world and not through any supernatural powers. He explains how this awareness is crucial in understanding the responsibility of relations.

> *As we experience the world, so we are also experienced by the world.* Maintaining relationships through continual participation with the natural creative process of nature is the hallmark of Native science. This practiced ability to enter into a heightened sense of awareness of the natural world allows the Indigenous physicist intimate understanding of the processes of nature, and forms the foundation for respecting the compact of mutual reciprocal responsibility shared with other inhabitants of one's environment.
> Through this way of participation, Indigenous peoples receive gifts of information from nature.
>
> (p. 20)

I have found the term "participatory consciousness", described by Heshusius (1994), to come close to the concept of consciousness in the Indigenous paradigm. It is beyond the arguments of objectivity and subjectivity,

and even ethics, since it does not deal with the self. Gaining knowledge is not an act of discovering truth but rather an act of merging with others to evolve. It involves tapping into the quiet of the inner space to a greater consciousness where knowledge about conducting relationships can be gained. This is complex to explain and I find I am having difficulty because this is the time when feelings override words. I need to be sitting with the reader to share the excitement I feel around this learning. I know I do not fully understand it, but that it will be a focal point of my purpose in the future. Heshusius gives examples from his own experience that illuminate the concept, but the understanding goes much deeper.

He speaks of being engaged in participant observation at a group home and struggling with the power differentials that existed and blocked his ability to attend. He said he moved into a state of merging or participatory consciousness that allowed him to see the lives of those in the group home as worthy for himself or for his children. At this point he dissolved rather than trying to manage or restrain his reactions and, as a result, he opened up a mode of access that was not there before. He states, "When one forgets self and becomes embedded in what one wants to understand, there is an affirmative quality of kinship that no longer allows for privileged status. It renders the act of knowing an ethical act...Mutuality and ethicality are at once embedded in a participatory mode of consciousness." (Heshusius, 1994, p.19)

My children remind me of this mode of thinking. I remember watching a show with them in which a scientist was studying the effects of pesticides on children in two control groups. It was quite clear to my children that the children living beside the pesticide soaked fields, who were the same age as my children, were having major problems. My five-year old asked me, "What is that doctor (scientist) going to do to help those kids, Mom?" I thought about how the study would have to be replicated, and how it may be generalized or perhaps used in court where the large chemical companies would win. I thought of how the children of these children would be in generational studies down the road and then I answered my son, "nothing".

How different research would be if we undertook a participatory mode of consciousness. If the scientist merged to see the situation of the children as worthy for herself or for her children, the intent of gaining knowledge and acting on that knowledge would quickly change. I believe this is a critical feature of how our paradigm will move.

The Indigenous paradigm extends the realm of participatory consciousness to include all relations, inanimate and animate. Considering the above example, would you consider the caribou's offspring like your own when their migratory route is flooded for a hydroelectric project to provide your home and children with electricity? It is not only the scientists who must shift their paradigm.

Bohm's understanding of consciousness parallels the Indigenous paradigm.

> If we can obtain an intuitive and imaginative feeling of the whole world as constituting an implicate order that is also enfolded in us, we will sense ourselves to be one with this world...We will want to care for it, as we would for anyone who is close to us and therefore enfolded in us as an inseparable part.
>
> (Bohm, 1988, p. 59)

Connection to Land

Land to Indigenous people is sacred. They do not own land, but rather belong to it. Their empirical belief structure is shaped by their environment and the history that they have accumulated there. Often, detailed descriptions of the people's territory through time are recounted through oral tradition. The culture and history remain alive in this connection to the land, and are profoundly linked to the past and the future.

The land is an important referent in the mind of Native people since it is where the cycles of nature occur and where cosmic movements are detected from certain locations or sacred sites. These sites are mapped in the space of tribal memory to acknowledge forces that keep things in order and moving. The

land is central in understanding the elements of universe and is therefore sacred and referred to as "Mother", the source of life. (Cajete, 2000)

Lionel deepens the understanding of the connection of Indigenous people to land when he speaks of deceased Elders as pockets of energy. He says when you walk in nature you may pass through this energy and gain wisdom. Cajete acknowledges that creative participation with earth goes beyond death.

> Death and the body's ultimate decomposition into the primal elements of earth, wind, fire, air, and water mark the transformation of one's relatives and ancestors into living landscape, its plants, animals, waters, soils, clouds, and air. This is a literal biological truth as well as a metaphoric one – hence, the meaning in Chief Seattle's statement, 'I cannot sell the body, the blood and bones of my people.' Life and death are transformations of energy into new forms, the material and energetic fuel of nature's creativity.
>
> (p. 21)

Understanding the implications of a spiritual connection to the land can be difficult when coming from a western perspective. A story of experience by Dr. Stan Wilson (1993) highlights the timelessness of our relation to the earth and unites many aspects of the Indigenous Paradigm. (Appendix B)

When our ancestors, our parents and our children are actually part of the land we walk, we will recognize its sacredness and care for its welfare.

Feelings

Knowing when the time, place and balance is right for many situations in life is being able to listen to the language of feelings. Elders are experts in hearing this language. "They can explain how they are able to predict weather based upon subtle messages given to them by the wind and sun twenty-four hours earlier. This involves the language of feelings from the inner world coupled with the language of reason."(Kawagley and Barnhardt, 1997, p. 10)

Manu Meyer (1998) explains that thinking and feeling are not separate. The stomach region is the seat of intellect as well as emotion. It is through the body that Hawaiians communicate since the body is a tool with which to sense and understand the world.

Deslauriers (1998) understands the movement of the heart occurring in experiences as an actual resonance, in which human inner life is recognized. He states that the creator placed spirit within us and through this spirit we can perceive a heart-felt resonance, and base a course of action upon this inner-knowing.

It is this feeling that tells us if we are prepared for a task, if the situation is right, if the location is correct and if there is balance. This knowing is a combination of feeling and reason. It permeates the Indigenous paradigm and can be felt by an individual preparing for a hunt or a group trying to reach consensus. This balance between the inner and the outer world is a life skill that Indigenous cultures teach.

The Power of Words

Those who live the Indigenous paradigm stress the importance of words. Lionel (1997) teaches that words have many levels; they are not only for communication but also hold meaning and history. The words of Indigenous languages reflect the paradigm because they are exact and do not have two meanings as in English, so they cannot be used in a disrespectful way. Words also have a spiritual aspect and the sounds made by words hold keys to healing. He says that traditionally minded people are in the 80/20 place when it comes to words, 80% spiritual and 20% physical. Some people's words die right out of the mouth because they have no spirit. Lionel says that we are not obligated to listen to dead words of living people, but we should listen to the living words of dead people.

The strength of words can be seen in the story of Pamela Colorado's grandfather.

> 'If you are going up the river, cut a pole so they can push your boat up. Before you give it to your partner who is going to help you, you got to run his hand over the pole. If you don't, sharp ridges on it will cut your hand. Then your partner will not be able to help you.' You have to run your hand over the words before you say anything, I tell my children. They are beginning to listen, how to respect each other.
>
> (1998, p. 58)

Lionel also warns that you must know where words come from and who is saying them since they are sacred and can be helpful or hurtful. Words have power and they can change, transform, heal or harm a person; therefore, they must be used very carefully. (Kawagley, 1995)

Conclusion

The definition of an Indigenous paradigm is never complete since the paradigm itself is constantly evolving. The categories I have chosen are limiting, just like ideas. I am sure that those who live the paradigm and are knowledgeable about what I have gathered would have much to add, and I hope that this will be the case. Were I more skilled in expressing myself in a holistic paradigm, I would have no categories, only an interconnecting web.

Deloria (1992) reminds us that Indigenous knowledge is informed by all sources, including individual experience, accumulated wisdom, dreams, visions, prophecies, and any information heard in nature. This knowledge can inform all sources, in that knowledge about animals and birds can form the basis of ethics, government, and economics, as well as provide a means of mapping a large area of land.

The Indigenous paradigm can be seen in the philosophy of Native science, as outlined by Cajete (2001).

> How something is related and the nature of causality in a given natural context are foci of deep reflection. The ways in which aspects of nature are transformed through time and space and the nature of proper orientation to 'sacred space' demand the observation of subtle details that are the foundation of knowledge. Ritual and ceremony can be personal or communal 'technologies' for accessing knowledge, and symbols are used to remember key understandings of the natural world.
>
> (p. 65)

The Guiding Principles of Balanced Research

Eber Hampton spoke of the essence of balanced research in the Indigenous Methodologies course.

> *It is not so much defining Indigenous research as defining research.
> *There is no Indigenous world – there is no non-Indigenous world, there is just the Creator's world, which has room for each one of us in our individuality and our people's ways. A human research methodology is about one mega-culture and it is speaking of all cultures.
>
> (Data, Appendix A)

These principles are intertwined with those defining the paradigm and with themselves. The interconnection does not lend it self to the written word.

Humility

It is with the absence of ego that higher knowledge can be attained. Humility is an ancient virtue that serves as a key to accessing the human condition and makes a person ready to receive knowledge. The knowledge of this condition is evident in the words of those who were present during the course.

> *Humility – maybe it is a part of the old traditions that come from humanity rather than culture.
> *If the researcher practices the virtue of humility it keeps reminding us that we can always fool ourselves. Also, that we need to do research with others rather than on others and that we need to do research with ourselves rather than on ourselves. Finally, that research is a relationship.
> *Research is about communicating something, not about what we found. We explain, not find. In the explanation we will be humble, honest, respectful etc. and we may find something else. It is important to be humble enough to gain knowledge.
> *As an Indigenous person I can only speak for me or maybe for some of the members of my family or maybe even for some Hawaiians, but never for all Hawaiians or all of my family.
>
> (Data, Appendix A)

Conducting research with humility is a lesson I am learning. The western scientific paradigm, methodologies, methods and roles are found at the opposite end of the domineering – humble scale. Those who act with humility are not even noticed, let alone acknowledged or reinforced; but, their time to be heard is coming.

Respect / Elders

Humility and respect are impossible to separate from Elders since their way of being is these virtues. Respect is evident throughout the Indigenous paradigm and is most prominent in the ethic of non-interference. Dr. Brandt describes this principle as meaning that, "an Indian will never interfere in any way with the rights, privileges and activities of another person." (Ross, 1992, p.12)

In terms of research, this presents many challenges since the methods of science are intrusive by nature. The participants in the class voiced their concerns and accommodations around respect.

> *Non-interference is hard to get around. If you interview someone you are intruding. It is difficult because the people I talk to may not see the bigger picture. It is scary to do interviews in their environment.
> *There are levels of intrusiveness. For me, my wife says I ask questions differently. I say, 'I was wondering about ...and why,' and I hope they say something. There may be less intrusive ways of asking questions.
> *I had an assignment to do that was an ethnographic interview. The first time I went to interview the person, I instead took her to the hospital. The next time, I ran her sons to school. The third time as soon as I sat down she started and answered all my questions without me saying anything. In my culture you cannot ask questions to an Elder. You can ask questions by not asking questions if you know how.
>
> (Data, Appendix A)

Native students and scholars have been adapting small parts of the scientific method to suit their paradigm, but their fear of being legitimized at the expence of disrespecting their way of being has put incredible pressure on the individuals. It is time that a respectful way of gathering knowledge for all of the relations takes its rightful place so that we may all learn from it.

Lavina White, a Haida Elder and stateswoman, notes that native inquiry focuses on respect rather than on power. (Haig-Brown and Archibald, 1996, p.259)

Archibald relates interconnectedness with respect in research through the following words.

> To be in harmony with oneself, others, members of the animal kingdom, and other elements of nature requires that First Nations people respect the gift of each entity and establish and maintain respectful, reciprocal relations with each...Respect, in ethnographic research with First Nations, originates from land and nature and harmoniously interrelates a people's past, present, and future.
>
> (Haig-Brown and Archibald, 1996, p. 251)

Archibald also describes her experiences as a Native graduate student asking a respected Elder for knowledge and how their roles and methods were defined by cultural learning protocols.

> The Elder determines where we should meet; the learner ensures that there is sharing of food and tea. The learner creates unhurried time and talking space so that the topic of discussion arises at the 'right' moment. It would have been disrespectful to ask my questions immediately. During our breakfast, I also realized I needed to respect his role as gifted teacher and to follow the proper cultural way of having him direct the learning process for me.
>
> (Haig-Brown and Archibald, 1996, p. 251)

In this example the teacher and learner have a relationship based on reciprocity and respect for one another and the traditional cultural ways of teaching and learning. The Elder respects the learner in terms of her lineage and motives, before he agrees to become the teacher. The Elder also respects the knowledge, since the teachings indicate that the knowledge cannot be rushed and it must occur at natural intervals. This learning protocol also indicates that the learner must respect her responsibilities by listening carefully to the Elder and thinking hard about the meanings, and then validating her understandings with the Elder before they are formally shared. (Haig-Brown and Archibald, 1996, p. 252)

Others build on the Elder – learner relationship, by explaining that there is an element of humility and respect that must be present in the learner which

creates a synchronicity of the minds that allows the passing of knowledge to occur on different levels, only one of which is communicating information. The learning needs to occur emotionally as well as intellectually so that the learner feels the learning. (Akan, 1992; Sarris, 1993)

In the Indigenous paradigm the search for knowledge and truth is the result of a spiritual relationship between an individual and the Creator. Elders are the interpreters of the cultural and ceremonial code and they act as guides rather than instructors for the individual. Through ceremonies such as vision quests or even dreams, a person may have their career revealed to them or they may be told to bring a certain medicine, dance, or bit of information to the rest of the community. The Elder translates the meaning of the spiritual encounter so that the individual can learn from it. The Elder's wisdom is learned personally, but it is derived from tribal experience that has been collected throughout time. (Colorado, 1998; Deloria, 1977)

Elders also serve the community, and often open meetings with a prayer. Again they create the conditions between all the participants and the spiritual realm which will create harmony and good thoughts toward the purpose of the gathering. During proceedings, Elders may stop the process, if conversation goes toward the negative, to get all those involved back to a balanced state through prayer. (Deslauriers, 1998)

Protocols

Ceremonies and rituals bring Indigenous people in line with the compacts that were made between the people and the sources of life, the land, and with the natural entities that reside in the environment where they live. For instance, coastal people made compacts with the animals they fished and the trees and the natural entities of the forest. It is the Elders who hold the knowledge to access these compacts and it is protocols which Elders follow. (Cajete, 2000; Lionel, 1995)

Lionel says that ceremonies carry the traditions since they are conducted the same way through time and bring with them the knowledge and

understanding of metaphysics and biology. Elders have hard and strict rules around ceremonies (protocols) because after thousands of years the answers have been found and worked out. Ceremonies are only good if the preparation is done. If, for example, boughs are not cut right and tied right with meaning, the protocol of the sweat is violated and there may be bad experiences around it. Lionel emphasized that ceremonies without preparation are rituals which are cultural novelty.

The Maori have protocols called Tikanga, that apply to a wide range of social practices including relation to the land, carving and construction of meeting houses, health practices and all ceremonial gatherings. Tikanga also conveys the sense that something feels or looks 'right'. The Maori also have knowledge which is tapu and access to these forms of knowledge are restricted by protocols. Even if the access to the knowledge is given, the knowledge must be treated with respect and care. The respect for protocols is a serious consideration for researchers. Smith (n.d.) states, "How researchers enter the research community, how they negotiate their project aims and methods, how they conduct themselves as members of a research project and as individuals, and how they engage with the people, requires a wide range of cultural skills and sensitivities." (p. 10)

Lionel warns that sometimes people coming into a community do things wrong from day one, then one day they will do one small act and the people will react against them and want to get rid of them. He says that, to be accepted, you have to go out and have tea, coffee, and be there at mealtime. It is about timing and your humanness. If you are true and act with humility, you will be accepted.

Knowledge of cultural protocols is required to gain access to information. First, the learner must know that cultural protocols do not permit Elders to share knowledge without being asked properly. There are also protocols that govern the acceptance or rejection of a learner, which may happen even if the Elder is approached correctly, due to the preparedness of the learner. As Colorado (1988) notes, "If an Elder responds, 'I do not know', or simply shakes his or her

head, the answer is 'no'. But if the Elder says, 'I'm getting old, it's difficult for me to remember,' the door is open for future visits."(p.57)

Protocol also governs the personal experience of the researcher. In order for a researcher to access their own consciousness, they must approach knowledge in a sacred and respectful manner. Franklin describes the protocols she follows, "First we must discover why we want to do the inquiry. Is it for cognitive or intellectual reasons? Is it a rite of passage to reenter our Indigenous consciousness? The latter comes from within. We must offer tobacco, pray, sacrifice and ask for prayers and directions from our Elders." (Deslauriers, 1998, p. 2)

Franklin also notes that, if inquiry is undertaken without proper preparation, it could possibly lead to important knowledge such as the methods employed in western science, but that the knowledge would be incomplete because it would not consider important relational aspects which come through the use of correct protocols. (Deslauriers, 1998)

Good Mind

There was an underlying theme found in the class that is reflected in the following comments.

> *We want a research methodology that does more good than harm and is a positive experience and maybe even a healing one.
> *The research must benefit people. Researchers have to put their cards on the table and say what is good for research and for the people.
> *There is a yearning for the knowledge for everyone, non-Indigenous and Indigenous, to help our children succeed and to have a good future for our people.
> *A new version of research will make it empowering, life affirming and good for all people.
>
> (Data, Appendix A)

Perhaps by grounding our intentions in the "Good Mind", where values are not detached from the knowing, researchers will create an empowering, life affirming version of research. The Native paradigm acknowledges that we humans bring our reality into being, in that what we think and believe, and how we act in the world impacts on literally everything. Through focusing on the

inner ear, which hears the subtle voices of nature we can centre our intentions which then create our thoughts and actions. (Cajete, 2000)

Walter Lightning (1992) worked with Elder Louis Sunchild to record the Elder's version of the compassionate (good) mind. Elder Sunchild's words seem uncomplicated at first, but with greater knowledge of an Indigenous paradigm, their depth seems endless. Walter asks, "How do we move toward a life of balance and harmony with all of life for our holistic survival?" He sums up his thoughts with the learning of his journey with Elder Sunchild.

> In the pursuit of knowledge, of understanding, of education, of learning, perhaps if we open our minds in a nonjudgmental way, a compassionate way, we may move toward improving our views, our perception of what the mind is and how thought is processed and more importantly how anything and everything affects our consciousness as human beings. It would seem that the Elders of North American cultures have something that they want us to know for our survival not only physically, but more importantly spiritually as well.
>
> (Data, Appendix A)

It is in the practice of a good mind that I feel another key element exists to make the shift toward a new paradigm.

Interconnectedness

The relation of all entities in the universe guides the Indigenous paradigm as described by Deloria (1986).

> The personal nature of the universe demands that each and every entity in it seek and sustain personal relationships. Here, the Indian theory of relativity is much more comprehensive than the corresponding theory articulated by Einstein and his fellow scientists. The broader Indian idea of relationship, in a universe very personal and particular, suggests that all relationships have a moral content. For that reason, Indian knowledge of the universe was never separated from other sacred knowledge about ultimate spiritual realities. The spiritual aspect of knowledge about the world taught the people that relationships must not be left incomplete.
>
> (p.17)

This all encompassing view affords Native people an advantage in research. Adamson (in Wells, 1998) relates that Native people are brilliant systems thinkers because they have a profound understanding of how all things

are related. Any problems within communities are never approached with one intervention strategy, but rather with a relational view that determines if one strategy is employed in one community then it will definitely affect, either positively or negatively, what occurs in a neighboring community. This connection is not in terms of liability if you understand it; instead it is a strength and the brilliance behind Native problem-solving.

The knowledge of the interconnections of all things in nature was understood within ceremonies, but this understanding also served as a methodology or guideline for making observations of the behavior of other forms of life. Being attuned to their environment gave the people the methods to find food, locate trails, protect themselves from bad weather, and anticipate upcoming events in the relations of the entities around them. (Deloria, 1997)

I have witnessed the abilities of Native people as they interact with their environment. One day I was at the home of my friends on the reserve where I taught. The house was located on the top of a cliff over the river and there was a menacing black cloud covering most of the western sky, coming toward us over the river. The lightning could be seen hitting the earth and the thunder was frightening. My friend and I were ready to take cover even within the house when her Dad began to pray with his pipe. The cloud somehow went around us and left only a few sprinkles in its wake. In my experience of weather there was no wind pattern, short of a tornado, that could have moved that cloud. For my friends, it was a normal experience.

Deloria (1997) states that the knowledge is available to anyone who lives primarily in the natural world, who is reasonably observant and who gives other forms of life the respect of having intelligence and the power of thought. He considers the change in scientific methods if these traits were adopted.

> If scientists really believed in the unity and interrelatedness of all things, their emphasis would shift dramatically and they would forswear using animals for lab research, change their conception of agronomy entirely, do considerably different studies of water and landscapes, and begin to deal seriously with the by-products of their experiments. Hopefully that day is coming.
>
> (p. 42)

Relations

In the Indigenous paradigm, reality is based on mutual reciprocity, and all of creation "pays back" what has been received from nature. (Cajete, 2000)

Coyhis (in Wells, 1998) states that, to remain in harmony with the natural laws, ego cannot be involved, since giving and receiving are equal and one is not better than the other. There must be balance in giving and receiving which includes all of the natural system in its interconnectedness and interdependency. The universal principle can be understood in Coyhis' words.

> Nothing works in isolation, in that it doesn't receive something from someone and give something to someone. Creation is designed to be needs-driven. So you take a tree and plant it in the ground; there are certain things that tree needs – water, minerals, light. The earth and the sun are there to provide that; and for that the tree gives back to the earth – shade, leaves, new seeds. Everything is like that – including the human being. If we function in harmony with the principal laws and values, we could, like a tree, give and receive in the understanding that we participate in a spiritually interconnected system.
>
> (p. 68)

The natural systems involve communities where plants and animals and all entities including humans share in the give and take of balance. This has been repeated many times in this work, but as Lightning reminds us, it is through, the repetition of the words that the importance of the concept is indicated. This is another key element where shifting our perception of our place in the natural system will bring us to the new paradigm.

Laduke offers wise words about the path that we all need to follow, the answers and solutions will be of our making.

> Another thing I want to touch on is the necessity of shifting our perception. There is no such thing as a sustainable development. Community is the only thing in my experience that is sustainable. We all need to be involved in building sustainable communities. We can each do that in our own way –whether it is European-American or Dene or Anishinabeg communities – returning to and restoring the way of life that is based on the land. To achieve this restoration we need to reintegrate with cultural traditions informed by the land. That is something I don't know how to tell you to do, but it is something you're going to need to do…The reason we have remained sustainable for all these centuries is

> that we are cohesive communities. A common set of values is needed to live together sustainably on the land.
>
> (Hannum, 1997, p.36)

An important element of cohesive communities is the collective approach which focuses on the commons as the basis for individual sustenance, and the individual as the basis for the strength of the commons. In the collective way, the focus is not on the good of the individual, as in an egalitarian view, but rather on the good of the group, where individuals develop to their full potential so that they can contribute to the betterment of the whole. Viewing a collective approach from the outside may lead one to assume that some in the system are privileged over others, but each role is important, and those who may seem to enjoy more privilege are those who have more responsibility to contribute to the betterment of the group. LaDonna Harris, who is Comanche, describes this way and states that, "you never perceive that you are better than anyone else in the community; everyone in the community is important to you – for protection, for nurturing, for feeding you, for giving you a strong sense of self…the more you have, the more you are obligated to give back…'leadership' means 'creating harmony'." (Wells, 1996, p. 26)

The necessity to put the welfare of your community before yourself has implications for research. Dan Longboat, during a discussion at the 1999 Indigenous Scholars Conference in Edmonton, told of how he approached his community with the skills he had as a researcher and he asked them where they felt his skills were needed and how they felt he should proceed. He said he felt useful contributing to the community. His work was acknowledged and brought solution to some of the problems the community faced.

Process

The Native paradigm has a unique element which ties all facets of experience together in *process*. It is a difficult concept to define since it is based in experience and must be felt, but there is an understanding that process

concerns itself with being and becoming rather than the product of what one has done. (Couture, 1991; Ross, 1992)

Eber Hampton's discussion of process during our class was enlightening.

> Process is the conscious and the unconscious and everything that is going on whether we are aware of it or not. It is what I trust. Where it all comes from – life itself. What the Creator gave us to work with – a spiritual thing as well as a day to day ordinary thing.
> Process does affect methodology because that is where it comes from. It is good to trust natural processes. If I work in a good way I will get there as I should. It is the same processes that created life and my people and their language. I can trust that.
>
> (Data, Appendix A)

Process permeates all aspects of life and this can be demonstrated through several examples. Tafoya (1982) speaks of process in traditional story telling and suggests that if he tells the meaning of a story (deals with the product) then he denies the reader the process of coming to the story's conclusions on their own terms. He gives an example of this way of learning as spoken by Larry Bird, 'You don't ask questions when you grow up. You watch and listen and wait, and the answer will come to you. It's yours then, not like the learning in school." (p. 24)

Lightning also speaks of the process involved in the words of Elders who tell stories in metaphors. The Elders realize that their time on earth is limited and that it is their responsibility to pass on the culture and the knowledge to the best of their ability. So they tell stories in metaphors, for they know that the younger ones will take time to understand them. Lightning says that, throughout his lifetime, the meaning in the metaphor of the stories of the Elders who have passed on has been revealed as he has become ready for the learning.

Process is about trusting, knowing when the time is right, acting on a feeling, and learning patience, and is evident in research as was revealed in the class.

> *Reinhartz says that during the research process the topic changes, the method changes and the research changes. And she argues that it distorts the research if this is not realized. She also says that if all

> aspects of the research are allowed to change then the research produces knowledge for something. Whereas if the researcher is held to being rational and avoiding the expression of emotions then the research produces knowledge about something.
> *I was thinking about research methodologies and how to choose a method. I have been working on making a bow during the evenings. The bow will be totally different if I follow the grain of the wood or if I don't. If I don't, it will break. I was using an old drawknife and thought that I was going to use it because it was best. But, I ended up using a new little knife because I could feel the grain better. I switched methodologies right in the middle because it was better for the job. I tried to ignore the grain because there were no knots, but it didn't work. I learned that I had to obey the natural characteristics of the wood. Just like you will have to obey the natural characteristics of what you are working on for your research. I really wanted to charge straight ahead and work, but I had to obey the grain. I hoped and wished, but it didn't happen.
>
> (Data, Appendix A)

Hermes (1998) describes her experience of conducting research on a reserve and how her method became part of a process. The process included being part of discussions, listening to stories, and reflecting on practices, while trying to strengthen community relationships and reciprocity. As she listened, she repeatedly heard stories about boarding school experiences, which she then began to ask for and organize her dissertation around. Her original intention was to focus on curriculum and community, but when she tried to narrowly define her research problem, she abandoned product for process and followed the wishes of the community rather than the scientific method.

Process can also be found in the writing of research. Hampton (1993) describes how he used an iterative rather than a linear style of writing in his study of Indian education. The iterative style progressed in a spiral, adding a little with each repetition. He also used a pattern of the six-directions which implied a circular movement through both the natural and spiritual world. Though non-Indigenous readers may find it repetitious, he contends that the writing unfolds its meaning as it is read. The reader is to also use a process to decipher the meaning, as Hampton asks the reader to read carefully not so much what he was writing, but the way he was writing it and especially to what

he did not write. (Hampton, 1993)

Purpose

The Indigenous paradigm stresses the journey, in that an individual finds his/her own path which leads to or makes for the attainment of inner and outer balance. Knowledge was not sought for its own sake, but rather it was a moral path, as Cajete (2000) explains, "Native people were interested in finding the proper, ethical, and moral paths upon which human beings should walk…No body of knowledge exists for its own sake outside the moral framework of understanding." (p. 76)

Balance comes when one is following the path of their life's work, which may come through experience (good or bad), the people one meets, or spiritual growth. The knowledge of one's purpose was strong for some in the class, while just being realized for others.

*We have all been placed here for a purpose, that is a natural law stated by the Elders.
*We say mine sometimes, but it actually owns us. It is not my research because it calls me and it chooses me.
*If the point is to learn something for some reason, then I exist as I am and am fixed up a particular way to do certain things. To do this, it seems to work better if I let others influence me, but not too much. As long as I don't violate the best that I know of who I am, then I am able to follow my path. Research needs to be consistent with who I am – the more consistent the better.
*In Hawaiian the term 'imi na'auao' means to seek enlightenment or wisdom, or one who seeks enlightenment or wisdom. "Imi na'auao refers to both the research and the researcher. There is no separation of the body of knowledge being researched and the researcher in the use of the Hawaiian term.
*In my own work I went back to my earliest memory related to the topic and I remember sitting in school as a young child looking in a book that had pictures of Indians riding horses in loin cloths. I knew then that there was something very wrong with the education system. My work on redefining Indian education is an extension of that experience. Memory is a connection to our purpose.
*Coyote's story that was re-written by Joanne Archibald speaks to me about my purpose and my research. I was picking the easier question to research that I thought I could get answers to instead of the one that I was meant to answer. But the one I was meant to answer was way off in

> the distance and it would take me a lifetime to answer. But I found I couldn't find the answer to the easier question because I had to go off in the distance to find my answer anyway.
> *As I've listened I've learned that everyone has a purpose and that we are all gifted.
>
> (Data, Appendix A)

The importance of purpose in seeking knowledge has been articulated by non-Indigenous scholars as well. Newton's purpose reflected a moral ethic that is evident in his words.

> So be it far from me to make myself a name or otherwise to use it excessively farther than for competent necessities for myself, but specially for thy honour and glory and maintenance of thy truth, and to the good of the poor fatherless, the poor widow and thy distressed members here on Earth.
>
> (in White, 1998, p. 129)

James Lovelock, the creator of the Gaia theory, like Hampton, relied on his first memory to intuit his purpose and life's work.

> To reminisce about the first memory or my personal life may seem irrelevant in our quest to understand Gaia. But it isn't...As a child I recognized life intuitively. As an adult wondering about the Earth's strange atmosphere – a mixture made of incompatible gases such as oxygen and methane coexisting like foxes and rabbits in the same burrow – I was forced to recognize Gaia, to intuit its existence, long before I could describe it in proper scientific terms.
>
> (Lovelock, 1988, p.16)

When Chopra describes synchronicity, the purpose of our experiences and our lives becomes clear.

> Although not easy to calculate, the odds of most synchronous events are preposterous. Anytime two people meet and discover that they have the same name or phone number, the odds are millions to one against their encounter. Yet this occasionally happens, and the simple explanation – that they were meant to meet – makes more sense than random numbers, but it isn't scientific. In spiritual reality, however, literally everything happens because it is meant to. The world is a meaningful place; everyone is working out their own lives' purpose.
>
> (Chopra, 2000, p.259)

Purpose can be extended beyond humans to all of our relations. Birch suggests that there is a degree of self-determination exercised by natural entities in response to the possibilities of their future. In terms of evolution,

chance and natural selection are not enough, "chance and purpose together provide a more substantial base for thinking about evolution." (Griffin, 1988, p. 75)

If purpose plays such an important part in our life, then how does one find their purpose and know that the path they are following is the right one. Of course having the answer to this question would take some of the great mystery out of life, so there cannot be any "how to" manuals, but there may be some helpful hints. First, how one approaches life can be purposeful. Cajete (2000) reminds us that we cannot mis-experience anything, we can only mis-interpret what we experience. Perhaps there are no wrong paths and our purpose can be found in any journey we choose. Some of us take the difficult route to our purpose.

Then there is the possibility of exploring our "in-scape". Tapping a higher consciousness with our heart and our mind by "setting forth specific intentions to seek knowledge from participation with the natural world and then exploring intuition and creative imagination." (Cajete, 2000, p. 71)

A third way to discover one's purpose is by remembering and feeling one's earliest memory and thinking deeply of how this memory has touched your life along the way.

From my own experience, I would say the fourth way to determine purpose is through feeling and being attuned to the sense of one's body. As I have described in this work, there have been times when every cell of my being has been excited over an idea. I literally buzz for days thinking about a concept and how it relates to other knowledge I have gathered. It was the excitement that I experienced as I thought of the concepts in this work that made me choose this path even though it was one I did not want to take.

The fifth method for discovering purpose relates directly to seeking knowledge and it is an interesting perception of life. In our class Eber revealed his thinking.

> *What is your research question? To focus on the question presupposes a particular type of logic that goes from question to answer. The

> difference between life and school is that life gives you the test first and then the lesson. How does life work? We get the answer and then the question. Little children observe a bird flying and then they ask, "Why do birds fly?" There are a set of answers at the foundation of the research and we try to invent the questions. What is the answer that is the basis for your research?
> *There is research where the answer is the hidden agenda. We should start with the answer as the explicit and then work toward the question. The answer if there, state it clearly and then work toward it. The hope from the Great Spirit is that we get the questions right.
>
> (Data, Appendix A)

Hermes (1998) suggests that a purpose can also apply to a community, which is in keeping with a collective view. The emphasis needs to switch from "research for research's sake" to research that serves the needs of a community and *its* purpose.

The strength of purpose and its ability to help us make the paradigms shift is proposed by Deloria (1992).

> The next generation of American Indians could radically transform scientific knowledge by grounding themselves in traditional knowledge about the world and demonstrating how everything is connected to everything else. Advocacy of this idea would involve showing how personality and a sense of purpose must become part of the knowledge which science confronts and understands. The present posture of most western scientists is to deny any sense of purpose and direction to the world around us, believing that to do so would be to introduce mysticism and superstitions.
>
> (p. 40)

Researcher's Role

An important premise of an Indigenous paradigm is the intentions, and keeping of a good mind and heart of those who seek to attain knowledge. The class discussion spoke of this.

> *Respect should be paid to the character of the researcher. Elders know that motive comes before method, techniques, or knowledge. You are taught the knowledge, information, and procedures, etc., when you are ready for it or when someone thought you were ready for it. The thought

> that someone would be given knowledge when the giver had no sense of who the person was would be insane.
>
> (Data, Appendix A)

Being ready meant that a person would be anchored with proper intentions. By acknowledging both the spiritual and sensible world, the acquisition of knowledge would occur in such a way that values would not be detached from knowing. (Deslauriers, 1998, p.1)

Lionel shares teachings that guide the actions of all of us when creating relations with others, and they are especially helpful to a researcher.

> *Don't give I statements – it is not important what I have done.
> *Don't give answers to someone because then they will be a production of yourself and they won't have the opportunity to reach their potential. Each generation should be better until the two leggeds reach their potential as a society and get to a better place. Also – your answer may be wrong.
> *Don't ask a question; rather, listen to people so you get a wider base. You will get other knowledge and sometimes what you hear may be more than what you were looking for with a question.
> *Give only pieces of analogy that allows others to create an entire thought.
> *There is always a fight with your ego. Ego gets you too up on your thinking and you believe you are the centre and that you make things work. Ego is good because it helps you laugh and doesn't let it get too serious and there must be a balance. Have to keep humble.
> *If you can't explain it, then you are not to talk about it. They are many ways to share.
> *Don't be too bold – If there is a sacred spot over there that you want to reach, you must be humble to crawl on your knees and pick the grass and roots by hand to get there.
> *Don't draw attention to yourself in public.
> *Do not open up a subject unless you are able to teach another person all about it. Don't speak about anything you don't know about. Better to take time when you go to other people (protocol) than presume that you know.
> *To feel Cree is to know the how and why of the sacred meaning of a word. Our thoughts must be a reflection of the process of the structure.
> *We should not have a preconceived notion. When you put it on paper it becomes true. If you put it on paper don't do it with preconceived notion – go to the people and get the real meaning – not what you think.
> *If you are a non-Cree speaker, say the word and let it vibrate through your body before you know what the meaning is. It needs to resonate through your body. (Data, Appendix A)

The Maori's also outline a code of conduct for researchers that is defined in cultural terms and is used to determine if someone has "good" qualities as a person.

- aroha ki ti tangata. (a respect for people)
- Kanohi kitea. (the seen face, that is present yourself to people face to face)
- Titiro, whakarongo...korero. (share and host people, be generous)
- Kia tupato. (be cautious)
- Kaua e takahia te mana o te tangata. (do not trample over the mana of people)
- Kau e mahaki. (don't flaunt your knowledge)

(Smith, n.d.)

These cultural teachings change not only the role of the researcher, but research itself, as Eber discussed in class.

> *If research is about relationships and relating to others in human sciences and education, then we have expectations of how to relate to others. There was and still is a power differential between the researcher and the participant. That differential takes in the role of the researcher and we have our own view of that role.
> There seems to be a real need for the negotiation of expectations. The consent form is an attempt to do boundary maintenance and stop the power struggles. Negotiation presupposes the boundary maintenance. Which relationship would be most appropriate as an Indigenous researcher? Think about it, is it respect?
>
> (Data, Appendix A)

Non-Indigenous science assumes the role of power on the part of the researcher by taking an objective stance and having the status of science behind them. Whereas Indigenous science builds relationships on respect so that the researcher and participants are on equal ground and the pre-negotiation of power struggles does not apply.

In the Indigenous paradigm, the role of the researcher assumes the position of learner rather than expert.

> *Researchers think of themselves as experts too often. That is antithetical to what researcher should be. In the European tradition the base of knowledge is power whereas in other perspectives it may be beauty or balance.
> *I go back to my language to understand the concept of the researcher. I understand that I am trying to know about inner balance and that I don't

> ever have knowing above others because if I do, I betray my role to the people. I always have to be the learner.
>
> (Data, Appendix A)

Lightning (1992) tells a story of seeking knowledge from an Elder, and being told a story about a learner:

> The Elder then took a stick about 16 inches long from the ground a few feet away from where they were sitting on the grass. He scratched a notch at about the middle of the stick, and he, indicating one end of the stick and that notched mark said, 'this is when you are born and this notch is 50 years old. In this area between being born up to 50 years of age, you do not know anything." He then pointed from the notch at the middle of the stick to the other end and stated that from 50 years of age to 100 years of age you can say that you begin to have a hunch, an intuitive feeling, for knowledge. From 100 years of age and on, you have entered a stage in your life where you know something.'
>
> (p.217)

Hermes (1998) approached her research as a learner. First, she learned from her environment, as what she did and how she did it were situated responses to the specific culture, the problem, and the dynamics of the particular context. She also defined her role as learner when she chose to be in the community first and as a researcher second so that the community could influence and shape her methods.

The final element of a researcher's role is to transform during the research. If research is part of one's life purpose then the act of research must be a journey and when we have emerged from that journey we must be evolved so that we are ready to choose another path and continue toward our purpose. The class discussion spoke of transformation.

> *In the old European view there was the transformation of the researcher; that was the same idea that was in the old traditions. The extent to which research is transforming can be seen in the relationship between research and who we are as individuals; our feelings, emotions and motivations; and the usefulness, hopes and goals of our work.
> *Indigenous research methodology has to be individual empowerment. It invokes changes in ourselves first to be able to impact change in society.
> *Research is a celebration of ignorance and occasionally a transformation of it. The only way we can transform ignorance is by respecting what we know or what we think we know.

> *We need to honor biases as what we know. We need them too. When my father walks he carries his weight on his back foot. He makes sure that it is solid in front of him before he places his front foot down. We need to fully honor and accept our expectations, pains and fears etc., then we can feel around with the front foot and see where we are going. (Data, Appendix A)

Colorado (1988) speaks about the transformation of the learner who apprentices with an Elder. She says that during the contracting process an apprentice may make several visits to the Elder's home during which they will do chores, listen attentively, and follow directions about mundane activities. This establishes trust, but it also teaches the learner self-discipline, patience, a willingness to share, a faith and a belief in prayer, transforming them to a place where the learner will be prepared to receive the powerful knowledge the Elder holds in a humble way.

Deslauriers (1998) contends that a person must go through some transformation when they come into knowing. One must assume the responsibilities and obligations that come with the new knowledge and one must understand that as an important interaction with the world, the research may become a medicine for healing the researcher and those involved with the study. One must be prepared, for responsibility comes with knowledge.

Methods

It is through purpose, or motive, that a researcher defines how they will conduct their research. Eber gave an example of this in his work with graduate students.

> I have seen it with the graduate students that I work with. When they become aware of the motivation for the interest in their topic then it changes how they do their method. One graduate student I worked with came to me because he wanted to work with students in the detention room. He wanted to work with them and offer them counseling. He wasn't sure of the method and his ideas seemed removed from the students. I asked him about his school experience and he got in touch with the feelings that he felt when he was in detention. His experience still had a lot of emotion for him. He assumed that those kids in detention felt like he did. Once he knew how he felt then he could look at the children as individuals. A switch flipped in him and he was then internally

> motivated. He did extras for the kids and he in turn got benefits from the process of doing research. He also spent quality time with them and he placed value on them and their words so they had a positive experience.
>
> (Data, Appendix A)

It is the inner motivation that leads to a participatory mode of consciousness, allowing a value-based interaction with those with whom we form relationships in our research. Focusing on methods to initiate the research process blocks our ability to connect with our purpose and those we work with.

The methodology and methods in the Indigenous paradigm become part of a process, so that rather than being determined first with the research following, they become evident during the research. Eber explained this during the class.

> *The methodology should be put in the background not between the researcher and the research topic. It seems that we are healing the separation or alienation between the research topic and the researcher. This is a very different view that Bacon held. He said we can't respect our own opinions because we are too close and the further away we are the clearer we can see. There was a lack of trust for the process and in the researcher and the research. By refusing to engage and distancing ourselves from ourselves and the topic it was believed our knowledge would be more accurate or secure.
> Richard Katz says that the research gets more valuable and more interesting the more the researcher is willing to be vulnerable.
> We might be going to the idea that the more engaged we are with our research topic the more in-depth our knowledge becomes. Also, that by engaging with the topic and being involved with the topic our knowledge of the topic will be deeper, more useful and more accurate.
> *Maybe the method should be done first and then it should be explained through the methodology. Humans seem to know what to do – trust the process.
> *The method (honesty, respect, etc.) becomes who we are. It becomes an expression of who we are and the best that we can do. The method becomes secondary because what we are actually doing in the situation is being real.
>
> (Data, Appendix A)

Hermes' (1998) situated response seems to follow Eber's insights as the way she did her research, or the methods, were impossible to extract from the research, its context, and the cultural location. She did not delineate her methods before she began, but rather explored a problem that was relevant to

the community in a way that was responsive to that particular context. In other words, she collected data in areas that she was led to and in ways that were appropriate for the community.

Several Indigenous scholars have adapted existing methods to better suit the paradigm. Conducting an interview involves spirit, mind, body and relationships. One must arrive at a good feeling to be in harmony with the one you are speaking with. The research process is described in the following words.

> When that person is relaxed, you begin. Also, keep the language simple, never put yourself above someone else. It won't work. The interview has to be balanced. I watch the little things. If it's too serious, I joke and tease. As I begin, I have to put my knowledge, mind and my feelings on the table. I have to come out with it: what I'm there for, what I'm trying to do, how I feel – everything. Then I have to really listen. Sometimes I have all my information and the person goes right on talking two hours more!
>
> (Tuccaro in Colorado, 1988)

Interviews with Elders are governed by cultural protocols. Hermes (1998) found that she gratefully listened to the narrative or story-telling of the Elder and never tried to consciously guide the discussion or interrupt the Elder with questions.

Hampton's formal interviews changed, as he found that they got in the way of the process of learning. He talks about the experience, "They were academic colleagues and they were compassionate and kind and they tried to answer, but the questions were getting in the way. They were able to respond when they talked about what they were doing and why, so I tossed the questions and used four as a reference point." (1995 p.275)

Hampton found that the best shared moments of insight during the interviews came as a result of a process called reflective thinking. He describes these moments, "They were neither question and answer nor a critical discussion but a reflective discussion that enabled the participants, including me, to build our thoughts together in an additive or sometimes exponential way." (1995 p.276)

The talking circle incorporates interconnectedness, respect and spirit and can be adapted toward the research process. A talking circle can be understood in Wilson and Hampton's description of a healing circle.

> Typically, group members sit in a circle. The symbolism of the circle itself is important in that it represents the holism of Mother Earth; the equality of all its members. Traditionally, an eagle feather, or similar sacred object is passed around the circle. In contemporary times a stone is often used as the medium through which participants feel connections to both their fellow group members and to the Spirit which guides their progress. The holder of the sacred object speaks, 'from the heart', expressing whatever emerges as important at that time. The role of those present is to listen, non-judgementally, and in silence, until the speaker has completely finished. There is no attempt to rush in and solve the problem, to diffuse the issue, or in any way to lessen the moments of contact for the one speaking. The object is then passed to the next person, following the direction of the sun. Each member gets a chance to talk and to be heard.
>
> (Wilson and Hampton, 1993)

The talking circle is about building relations in a respectful way. It creates a safe environment for people to share their views with others while gaining trust in each other. The focus of the circle is on the self. By respecting one another people are increasingly willing to share their experiences and feelings since their personal integrity is maintained and a supportive environment is created (Regnier, 1995). The talking circle could be a respectful way of learning the opinions of others while collecting data and sharing in the process to learn the needs of the community.

Kawagley (1995) has an interesting way of collecting visual data, which is in keeping with his Yupiaq people. He intentionally avoided the use of conventional written reports that he felt did not always match the people's reality. He collected data by observing the people in their daily lives, by listening and paying particular attention to the content of their conversation, and by looking at the use of modern artifacts including tools, museum archives, school board minutes, etc. He informally visited with people wherever they would happen to be and found that information and feelings were freely expressed. He would listen intently and often write down information and ideas as soon as he

got back to his room. After the research he found that his methods were in close keeping with the traditional Yupiaq method of research, "that is, patient observations through participation over a long period of time, reflection on things that I saw and heard and, unobtrusively, informally checking out my tentative conclusions with villagers." (1995 p.176)

There are data analysis techniques that relate to the collection methods above and are in keeping with an Indigenous paradigm. From my own experience, I found a unique method for sharing data modeled on the talking circle which respected the reader's ability to analyze and form their own opinions. The themes are presented in the participants own words in the form of a talking circle as Wells demonstrated in his book, The Honor of Giving: Philanthropy in Native America (1998). Wells interviewed Native American leaders and organized their thoughts on philanthropy into an imaginary talking circle. He used the words of the leaders without interpretation and as a reader I was very moved by the comments. Since the words did not have the imposition of another's opinion, I was allowed to come to my own conclusions and I drew much from the information.

Hampton used a six-direction pattern including the east, south, west, north, above and earth to analyze the data he had gathered. Each direction held a complex set of meanings, feelings, relationships, and movements for him and he worried that they might be misinterpreted as a model rather than a force that guided him in his work. In terms of the use of the directions he stated, "it helps me to understand in that it stimulates my thoughts and feelings rather than being contained in my words." (1993, p. 280)

It is important to realize that methods of analysis will vary as each individual finds meaning in their own way, whether it be through a particular First Nation perspective or an understanding of natural sensibilities. This contrasts with the practice of western science where already formulated methodologies or methods of analysis must be followed to validate the research practice. Hampton wisely suggests, "My understanding of these things is necessarily limited by my own experiences and abilities and I ask the reader to be cautious

in interpreting this writing, taking only what you can find out for yourself." (Hampton, 1993, p.280)

Kawagley (1995) used a technique of analysis that added to the mutual learning experience of himself and the villagers. When he had a certain amount of information gathered, he cross-checked the information with the villagers. He then organized the data into cultural domains and themes and summarized these results to gain the reactions of valued informants. He notes that his form of community-based research involved a reciprocal learning process that allowed him and those in his community to work toward a new Yupiaq consciousness.

There are certain areas of study that lend themselves well to the Indigenous paradigm. Rebecca Adamson (in Wells, 1998) linked systems theory with the Indigenous thinker and their profound ability to find relation in all things. Eber Hampton found grounded theory to be useful since it promotes joint data collection and analysis. And Cajete (2000) parallels the approaches in phenomenology that provides a viewpoint based on our innate human experience within nature.

Ways of Knowing

The Indigenous paradigm has methods of gaining knowledge that reach beyond the physical world to interconnect all aspects of the known and unknown realms. The paradigm's ability to make such vast connections stem from spiritual beliefs and the knowledge that humans are an equal part in the web of existence.

An understood method of knowing comes from the peoples' intimate relation to nature. Tafoya tells a story of his uncle, who was upset because of a plan to erect a building on the only irrigated piece of land on the reserve. He disagreed with the college-educated crowd, said that his knowledge came from the land, and shared the following story.

> When my old people were trying to teach me about water and the land, they would take me out at dawn and leave me out by myself, telling me to

> keep my eyes and my heart open. At sunset they would come back and get me. They would ask me what I had learned, and if it wasn't what they wanted me to learn, then the next morning I was out at dawn again. What I learned from that I'll never forget.
>
> (Tafoya, 1982, p. 31)

Don Coyhis tells a similar story of when his Elders brought him to nature to understand diversity. He said his Elders wanted him to know that, "anything we want to do, whether involving relationships, families, or the workplace, is helped if we go and sit in nature. Nature has many, many answers. That's where the teachers are." (Simonelli, 1999, p.17)

Knowledge comes from intimate contact with nature and through the intuitive unfolding of signs, such as rock paintings left by ancestors. (Deslauriers, 1998; Colorado, 1992)

Intuitive knowing is a creative process that young children naturally practice. It requires an openness and trust of feelings, and a careful look at symbols. It is the consideration of many perspectives and a deep listening to what others have to say. (Cajete, 1999; Chopra, 2000)

Thinking in metaphors is a closely related knowing that involves symbols and images. One must be familiar with the multi-leveled and multi-layered metaphoric thinking in order to decipher Indigenous philosophy. (Cajete, 1999)

Behind each symbol and metaphor there is always another layer of meaning waiting until the learner is ready to discover it. This is characteristic of the ways of Elders and storytellers, who speak with metaphor since they understand the power in words and their spiritual meanings. Those who tell stories explain how the spoken word is sacred and powerful, and how it touches something deep inside the listener. They say the voice can connect the past, present, and future, and it can act as a key to unlock and awaken ancient memory. The human voice can leave a lasting imprint on the human memory because it can communicate heart and spirit. (Report of the Royal Commission on Aboriginal Peoples, v3; 116).

Archibald states that stories are an example of orality and they, "can challenge the storyteller/teacher and listener/learner to think hard, use

imagination, and make significant meaning or understandings." (Haig-Brown and Archibald, 1996, p. 247)

Stories reveal knowledge, since the underlying thought is an understanding of relationships, creation, and the creative process itself. (Cajete, 1999)

Dreams are another way of knowing that reveal our connection to a higher consciousness. Dreams and visions come from a point in consciousness where the private, communal, and spiritual worlds intersect. In an Indigenous paradigm, dreams are not an object of inquiry, but a means of inquiry. They help individuals with personal knowledge, like relationships, with communal knowledge, like the practice of medicines, and with spiritual knowledge and the connections beyond our physical world.(Deslauriers, 1998).

An example of gaining personal knowledge through dreams comes from Manu Meyer when she spoke at the Indigenous Scholars Conference at the University of Alberta in 1999. Manu had recently graduated from Harvard with a doctoral study that defined Hawaiian Epistemology. In her presentation, she introduced herself as a dreamer and explained how she had struggled with the concepts of her work until she asked for guidance. She was then given dreams that guided her in the understanding of each component of the epistemology. She said that she had not shared with her committee the way in which she had gained the knowledge, since she was already pushing the boundaries of knowledge acquisition with her topic.

Lillian Dyck tells a story that explains communal knowledge. She recalls a comment that was made in her undergraduate chemistry class. It was meant as an aside, but it had stuck with her through the years as an important point. Kekule dreamt of a snake swallowing its tail when he was trying to figure out the chemical structure of benzene – the dream gave him the insight to look at a ring structure. Dreams are a way of knowing that are accessible by all people and, as Deloria argues, have most likely played a significant role in the science of today.

> [a]t the deepest level of thought in western science, the greatest thinkers rely heavily on intuition, dreams and visions. But this phenomena is regarded as evidence of the individual genius of the scientist and not as data derived from external sources or drawn from a reservoir of subjective information available to all individual.
>
> (Deloria, 1992, p. 16).

Ermine cites an example of spiritual knowing through dreams. He contends that dreams are the voice of the inner space and prescribe all ceremonies on the physical level. My husband and I were married in a traditional ceremony. When we told my father-in-law that we were getting married he told us some ways to prepare. When we visited him a few weeks later, he told us that he had had a dream about the wedding ceremony. We made all the preparations and followed the protocols that were revealed to him in his dream. This ceremony has since been passed on to my husband and he has performed it for other couples. It has become part of the knowledge for the community.

Ceremonies are rituals which access knowledge. Suzuki shares a story he was told about the "shaking tent" ceremony during a stay at an Innu winter camp.

> In the middle of winter, in a frozen skin tent, they will strip naked, fast, and chant. They are insensitive to the cold, and after several hours, they enter a state where they 'can' see over long distances. I was told that a man once 'flew' over a long distance and 'saw' friends at a winter camp struggling for help. So the person in the shaking tent sent for help and saved them. (Suzuki, 1992, p. xxix)

The conclusions drawn by Suzuki are interesting. He says that he will not pass judgement on this experience just because theories do not exist in western science to support these phenomena, and he reminds others that acupuncture was labeled a superstition until brain hormones like endorphins allowed a theory for its validity. It warms my heart to see the doors opening to a new paradigm.

The vision quest is another ceremony that opens ways of knowing for the individual. The ceremony is one of the ways a person can access their purpose

in life and their soul, as well as the forces of nature and the surrounding environment. The quester's vision is shared with the people and it blends itself into the knowledge of the community. (Cajete, 1999)

Lewis Cardinal tells a story of an Elder think tank that was held in the mid-70s in Alberta. He says that he was fortunate to work with his father to help organize the meeting and that he observed and learned much about the methods involved in accessing knowledge through ceremony and its use.

> They were using a tool I had never seen before and I didn't know what it was, but I knew it was very interesting. They would come into dialogue about a policy for example, whatever policy was coming down from the Indian Act or Department of Indian Affairs...they would make arguments for or against and they would go around the circle, they would use the circle. So that became apparent right away, and they'd practice exquisite listening skills, where they would even paraphrase what the previous Elder had said to make sure that the information was correct, and they said it the right way. And then they'd come to a point perhaps where they couldn't decide about what it was they were going to do or what recommendations they'd make, they would say let's sleep on it and pretty much the meeting would end at that point. They would go do their personal ceremonies, or they would go into sweat lodges, or they would go into pipe ceremonies and then early the next morning, they are already meeting at 6 o'clock while the government officials are trying to get themselves organized. They suddenly talk about their dreams, they would be sitting and talking about what they dreamt. They would say I saw this bear walking around this mountain and I was standing there and he took me by surprise, and so forth. The Elders would be listening very closely, and they were saying well what could that bear mean and that sort of thing. Suddenly they start comparing information from the dream work, and then they started to realize that the various symbols were being dictated to us from a different part of our being. So we're starting to see something more. And suddenly they came up with an answer. Well that's what we're missing because there's a certain thing being hidden here. If we find out what that is, then we can respond to how this is going to be. Then they'd turn to my Uncle Harold and my father: You guys write a letter to Indian Affairs, tell them we need this kind of information, then we can respond. Right there, for me, there is a method, an Indigenous methodology but it's not recognized. For the bureaucrats from Indian Affairs, they didn't see anything at all. Just some old people talking about their dreams. But we know that 65% of our communication is not verbal so that we take in a lot of information into a very deep, subconscious place.
>
> (Transcription, 2001, p. 7)

Prayer is an important element in Indigenous ways of knowing. The Indian Association of Alberta speaks of "Gii Laii", or prayer as medicine that leads to the quiet place within. It is like a round hole in a bed of a stream or a lake, where the water is held in suspension while life continues to move through it. Gii Laii creates a sensation of total aliveness, awareness, and peace, along with the sense of slowed time. (Deslauriers, 1998)

Ermine describes the intricacies of prayer and its abilities.

> In Aboriginal epistemology, prayer extracts relevant guidance and knowledge from the inner-space consciousness. It is the optimal metaphysical idiom that is recognized in corporeal form as chants, dances, language, and meditation. The Old Ones know the intricate and tedious task of fusing the energy that emits from the place of prayer within. Prayer becomes power and by its very nature becomes another instrument in Aboriginal ways of knowing.
>
> (1995, p. 109)

Elder Louis Sunchild, in speaking of the compassionate mind, tells of the consciousness having the capacity for pure intelligence. He explains that the mind possesses supreme awareness in a divine way. Lightning interprets this to mean that there is a connection between the mental and the spiritual domains, and the mind is not just ego, but has attributes that reflect the Creator.

This can be understood in Elder Sunchild's explanation of protocols. He says that when protocols are followed in all of their explicitness there is a divinity behind them and the truths that are spoken within those protocols will be remembered in their exactness forever. He explained, as an Elder in his late 70's, that he could remember word for word some of the things that he had heard when he was a young man because the protocols had been respected when the words were spoken. Elder Sunchild described the knowing as automatic without requiring thought but rather a centerdness since the knowledge comes from the divine. (Lightning, 1992)

Hampton's explanation that memory comes before knowledge may indicate that memory comes from a divine place.

> Every person's life contains experiences and memories of these experiences. The way it works for me is that I forget those things until I unwrap them, until I actually roll out the sacred medicine bundle of my life and look for those memories. I pick them up and touch them and feel them. And each memory gives me knowledge.(Hampton, 1995, p. 53)

To help understanding, an example will be shared that demonstrates how ways of knowing can be synthesized. Deloria (1992a) explains how data are gathered and then transformed into useable knowledge. Indigenous people understand dreams, visions, and intra-species communications as a natural part of human experience. The task is to make sense of data even when it may come in an emotionally charged context by holding onto it until a sufficient number of similar experiences reveal patterns of meaning. The knowledge from many individual or collective/communal experiences may be arranged and held in memory. The number of specific cases increases with age along with wisdom. As a person gets older he or she is able to remember and understand a wide variety of events or activities that are species, location and time specific.

Deloria (1992a) tells how this broader knowledge base might be used to locate buffalo in an exceedingly large tract of land. First, locating streams and watering places would be a natural choice and would parallel western science, but if this failed there would be other ways. For instance, Indigenous people know that buffalo love sunflowers and they often frolic in the plants and literally decorate themselves in the flowers as they tossed them about. Also, blackbirds join herds of buffalo and sit on their backs waiting for the grazing animals to disrupt insects. So, the search could be narrowed to locations where sunflower and blackbirds were sighted. However, a more sophisticated route would be to locate a dun beetle who lives on top of the buttes and hills on the northern plains. This beetle has two antennas on top of its head that always point to the nearest buffalo herd no matter how far away they may be. This information is not ad-hoc but included in the teachings of the people and it can be used to predict the behavior of buffalo, birds, insects and flowers.

Data collection and analysis employs ways of knowing that are complex and require not only skill, but a way of being.

Validity

Validity has its place within western science, but does it belong within an Indigenous paradigm? A close look at a situation that arose during the defense of the proposal for this research may shed some light on this query. The examining committee for the proposal consisted of three committee members, an external examiner, a chair for the defense and an Elder. All of those present were required by the university except for the Elder. I felt an Elder was necessary since I would be speaking about Native epistemology, protocols and culture, which are different from the culture I was born into. An Elder would be able to guide me if I was making statements about my learning that did not accurately represent the culture. I asked the Elder, both privately and in the presence of the other examiners, to let me know if she thought my motives were not genuine or in the best interest of others, or if the information I was presenting was misrepresented, at which time I would discontinue that path of research.

A critical factor in the Elder's ability to examine my motives and chosen research path is her relationship to me. She needs to know who I am and where I came from. Who my parents and family are, and how was I raised? Am I respectful of others and of traditional knowledge? How do I fulfill my responsibilities to my family and how do I conduct myself during ceremonies? The Elder I chose knew these things about me. She is also respected in her community as a medicine woman, a teacher and a keeper of traditional knowledge. She was ideal to determine my ability to speak of my experience of Native culture and traditions and to verify my motives in doing the research path I chose. Even though I deeply respected the other examiners and their ability to guide my research, only one of the examiners lived the culture and would be able to judge the accuracy of the cultural aspect of the work.

On the day of my defense, all of the committee members, the external examiner, the chair for the defense and the Elder entered the room as official examiners verified by graduate studies. But just before the door closed to begin

the defense a letter arrived from Graduate Studies that stated that the Elder was not allowed to be considered as one of the examiners. It explained that the Elder was the student's relative (my mother-in-law) and that relatives could not examine family members.

From a non-Native point of view I understand this rule in the context of the education system our culture practices. There would be no use in having my parents, siblings or relations as part of my examining committee since their only purpose would be to cheer me on and I would expect them to. They would be biased in a way that would hamper my education. However, understanding and feeling from a Native point of view, I felt shocked. I knew how disrespectful those comments were toward an Elder, especially when they were conveyed in such a straight forward and public manner and it made me feel shameful for putting my mother-in-law in that position. I felt embarrassed for the others in the room who represented the university. Fortunately, my mother-in-law is an Elder and she is knowledgeable in affairs with non-Native people and understands that her ways are rarely acknowledged or accepted. It was ironic that the research was about that acknowledgment and its rightful place alongside the university's way.

My mother-in-law lives the traditional knowledge and as such is placed in a relationship with my learning, the culture, the natural laws and all of the relations. As an examiner, she does not evaluate my learning but guides me in the protocols and the respect of the knowledge. Her relationship to me helps her to know my abilities and if I am prepared to take on the responsibility of the learning. The knowledge of creation is much greater than both of us; we would never assume that we could judge it or speak of its truths.

The examining committee came to understand the importance of having my mother-in-law, as an Elder and an examiner, at the defense and they took action to notify graduate studies. I was asked to meet with the head of Graduate Studies and I explained my position and was promised that it would be taken up with higher authorities so a move could be made to change the rules and I would be informed of the decisions. After several months of not hearing from Graduate Studies, I happened to meet the head of the department casually and asked

what had come of the decisions and was informed that those higher up felt that the rules were adequate and that there would be no change. I'll take that on as my short fall as I should have met with those higher up. I know from my experience that no changes can be made unless people have a chance to make a change in their hearts first.

Validity and its intrusiveness were referred to in a comment during the class, "Why do I have to have validity for the pain of what others have shared. If I am the writer and the believer and it has purpose for me, then that is valid." (Data, Appendix A)

A response to this may come in a discussion of a series of articles about the residential school experience, where Urion (1991) speaks about the validity of the discourse. He offers that validity is expressed in, "the moral authority of the interactants to the interviews, who know that the earth witnessed the things about which they spoke." (p. 8)

The authority for knowledge can be found through different means in the Indigenous paradigm. Elders are the authority since they are the holders of traditional knowledge and they interpret the cultural and ceremonial code. They have the main responsibility in the validation of knowledge and in teaching the cultural ways. (Deslauriers, 1998)

Authority also comes through the use of proper protocols. Protocols determine whether the spoken words have meaning and are able to sustain themselves (authority). Lionel spoke of the dead words of living people which refer to this concept. Elders say that authority is determined by how long a teaching will last before it "powers out", or loses its spiritual energy. (Lightning, 1992)

Another source of authority can be found in the oral tradition itself as Deloria (1997) explains.

> The possessor of the oral traditions had nothing that would encourage him or her to change the meaning or emphasis of the information except, as already noted, the desire to entertain. People had no vested interest in wealth or prestige by becoming knowledgeable and, lacking any concept of tenure, storytellers maintained their status only to the degree

> that they represented information and wisdom. Any suspicion that they didn't know a subject would eliminate them as a serious and reliable source of knowledge.
>
> (p. 40)

It would seem that integrity rather than validity would be a concept more appropriate to the Indigenous paradigm. A definition of integrity within this paradigm comes from a doctoral student, Cora Pillwax, when she states, "I think that what happens when you contextualize yourself in community, with your family, with your people, and eventually when you contextualize yourself in the planet, and the rest of all living systems and things, it demands integrity." (Transcription, 2001, p.9)

Having integrity because of relations through your family (as I experienced with my mother-in-law) and community as noted in this example by Cora Pillwax is a result of this contextualization.

> So these two Elders come from Fox Lake, a couple were brought in, so they came into the staff room and this friend of mine who basically knew them and was kind of hosting, brought them into the staff room...to introduce them to me. I was very happy to meet them and you know when you meet Elders and they're strangers, it's really quite formal. There's not a real openness. I mean you've got to imagine this is a bureaucratic administration of a central office. Not the typical site for Elders to feel welcome. So there was this kind of very formal, distant atmosphere. We said hello and then my friend said, well, she's the grand daughter of so and so and placed me in the relationship network in Fox Lake. Another grandfather had lived in Fox Lake and married into families over there. Well, it was like the sun broke out, immediately everything was totally different. They hugged me and then started to talk about my grandfather who had passed on. Told me some tremendous stories, it was wonderful.
>
> (Transcription, 2001, p. 2)

An example of contextualizing oneself with all living systems to maintain integrity comes from the doctoral student Shawn Wilson.

> You're answering to all your relations when you're doing your research. You know you're not answering questions of validity or reliability or making judgments of better or worse. Instead you're fulfilling your relationships with the world around you. So your methodology has to ask things, rather than asking things about validity or reliability, you're asking how am I fulfilling my role in this relationship? What are my obligations in

> this relationship and how do I fulfill them? Those become important parts of a methodology that, you know, when I'm gaining knowledge I'm not just gaining it for abstract ideas, I'm gaining knowledge in order to fulfill my role in this relationship. So then that is the methodology, Indigenous methodologies, looking at relational accountability, and being accountable to your relations.
>
> (Transcription, 2001, p. 14)

Integrity can also be found in those who practice research with a "good mind" and approach knowledge in a sacred and respectful manner. For the Anishnawbe, knowledge does not have to be supported by a theory, people know it is valid and reliable when it touches their heart (spirit). (Deslauriers, 1998) Even if the words come from those who have passed on, words spoken with integrity will touch other's hearts.

The last measure of integrity in this work comes from the people themselves. As a student in the class noted, "I would like to set up a committee in my own community when I go back home. My own people will be able to validate my work more than the committee at the University of Alberta." (Data, Appendix A)

The findings must be created and validated by the people who live the interpretations to avoid situations where an entire people has been labeled a certain way on the research of one anthropologist. (Te Hennepe, 1993)

The integrity of the researcher's intentions must be clear. If the researcher is not from the community in which they study they must possess a comprehensive knowledge of the culture, a serious commitment to advance the well-being of the people and their cultural values, and a sincere respect for the ways of the people. (La Framboise and Plake, 1983)

Reliability does not apply to the Indigenous paradigm. In order to replicate findings it is assumed that the laws of nature are the same and do not change so absolute certainty can be found, like the view held by the Cartesian paradigm. The Indigenous paradigm understands that all of creation is an evolution and that it holds mystery that we will never know. Research without reliability may be evident in the situated response method that Hermes

undertook in which she advocates that her methods could not be replicated, but instead they were situated within the particular relationships between herself and the other community members.

Evaluation

There are a few points about evaluation that should be made to keep us thinking, since much about western science has to do with evaluation. Assessments are authentic in the Indigenous paradigm. A hunter's skill is assessed on how many caribou he gets rather than how he shoots paper bull's eyes. Also, evaluations are prescriptive and ongoing. Rather than receiving a C on a hydrodynamics project a student may be told that they nicked their propeller coming through the channel and they need to look at how the river comes off the bank and try to figure where the gravel is lowest. Then, they may receive further modeling and another opportunity to practice before they master the skill. (Kawagley, Norris-Tull, and Norris-Tull, 1998)

Success must also be assessed with one measurement in the seen world and one measurement in the unseen world. When only one measurement is taken, then you are only able to see half of the picture. (Wells, 1998)

The last comment on evaluation is very pertinent to our current global crisis.

> In western terms, competency is based on predetermined ideas of what a person should know, which is then measured indirectly through various forms of 'objective' tests. Such an approach does not address whether that person is really capable of putting the knowledge into practice. In the traditional native sense, competency has an unequivocal relationship to survival or extinction. You either have it, or you don't, and survival is the ultimate measure.
>
> (Kawagley and Barnhardt, 1997, p.1)

Long Term

Any research must go beyond the fragmented time frame that is required to complete a post-secondary degree. Researchers must be willing to become part of a research process that is implemented by a community and considers

the well-being of seven generations to come. The Indigenous paradigm includes observations that have been taken over generations. This multi-generational perspective will go far in healing our planet since it is going to take a communal effort over a sustained period of time to once again reach balance.

During a telephone conversation in the class, Lester Rigney told how research is changing in Australia in Indigenous communities.

> In Australia the researcher is only allowed in communities with a signed contract between the university, the researcher and the community. The researcher is required to be in for the long haul. The community does not just want recommendations. There must at least be a strategy put in place so that there is accountability back to the community.
>
> (Data, Appendix A)

Conclusion

The Elders are aware of the unfolding prophecy, "that the White brother will come to the Red brother for teaching." They accept the non-Natives who come to learn from them, but there are pedagogical challenges with the difference in paradigms. (Couture, 1991)

Colorado (1988) suggests that the Elders have thought of these challenges and have made recommendations to ease the process as follows.

> A. Elders recommend that an intercultural team approach be used and that we focus on relations. They will teach educated Native people about traditional ways. In exchange, the Native professionals will be bridges with non-Native professionals...
> B. Elders want the opportunity to work and interact with western educated Native professionals and non-Native experts. They would like the chance to collaborate in research, through theory-building and practice development with their non-Native equivalents.
>
> (p. 66)

These principles like the paradigm are not models, but rather a discussion of what I have found in the research and some of my experiences. It is an open-ended framework to help others on their journey. Hopefully, they will stop and add their knowledge and change what doesn't seem to fit. It is part of a process working toward making our world a better place.

The Framework for Balanced Research

The Conversation

During the writing of the proposal for this research I was given an insight into the organization of research in a balanced paradigm.

> The organization of research can be explained in terms of the rules governing conversation. When we first meet in the non-Native world we ask, "What do you do?" We then continue to converse and set the framework for our conversations on our roles in our job. As we get to know each other out of our workplace we may ask about families and even find out that we both grew up in Winnipeg. This structure of conversation is very much like the structure of research in the scientific paradigm. In the first chapter the background of the researcher is established, such as prior work experience and what the researcher has done or accomplished in their life and how they see the world. By the end of that chapter, the task of the researcher is stated along with the problem and the research questions. The researcher and reader know *what will be done.* The next chapters set the framework for how the task will be done in terms of the work. The literature review sees how others have approached the task, and the methodology states how the task will be framed. As in conversation, the roles that define us in what we do also frame how we converse, until we become good friends. The conclusions are very specific to the task, but sometimes they generalize to other areas like in conversation where we include our family or our past.
>
> I realize that I am making generalizations in both worldviews, but I hope to bring understanding to the reader through areas that are familiar to them.
>
> In the Native world, when you meet, the first question that is asked is, "where are you from?" The most important task is to establish a relationship. As Meyer (1998) states in her description of Hawaiian Epistemology, 'Relationship, feeling one's family presence, knowing their names – all become a part of how a child learns… it guides them and connects them to their present life… they make sense of the world from these historical cues.' (p. 24)
> I have watched my mother-in-law as she meets new people. She states the reserve she comes from, then who her grandparents and parents are. The other person does the same until they make some connection to a

> person or family that they both know. When that connection is made they can then structure their conversations around their relations.
>
> In terms of research, the methodology would then be established on the basis of the relationship and connection that was made. So methods and analysis must be based in the relationship with the people that the researcher participates with – as a priority, and not based on the task of answering a problem as the priority. When the framework of relations is constructed for conversation, then Native people proceed with conversation about who, and how things will be done. As in conversation, research cannot proceed with the who or the how until an entire framework of relations has been constructed. This is protocol that derives from respect for others.
>
> (Research Proposal, 1999, p. 31)

The Framework

My thinking evolved through this work to a point where I could see a framework for research. I was given the understanding through an insight when I began writing. Now that I am at the end of the journey I see that the framework still holds true. I was reluctant to share this because I have truly learned how little I know of an Indigenous paradigm on which this framework is based. But I understand that it must be important from the way I received it and that it needs to be communicated. *Not because I am writing it or because I have more knowledge than others, but because I have been given this knowledge along with my life's experiences to help me understand it so that it can be shared.*

A comparison of the scientific method to this balanced framework for research may help to place the framework in context.

The Scientific Method of Research

What do you do?

Establishes the task

What does the researcher choose to study?	Research Question
Why does the researcher choose to study this?	Purpose of Study
Who will be studied?	

Establishes who the researcher is in terms of the task.

What does the researcher know about others who have attempted to define this task?	Literature Review

Establishes how the task will be accomplished.

What previously established ways of conducting research will be employed so the work will be valid?	Methodology Methods

Establishes the findings of the task.

What findings are determined about the task by using the appropriate methods?	Results Analysis

Establishes the answer to the task.

What answer is found and how does it relate to the answers others have found?	Conclusions

Examination – Did the researcher define the task properly and follow the established scientifically appropriate methods so that reliability and validity could be determined? It is then assumed that the conclusions hold truth, since the scientific method is the way that our society creates truth.

The Balanced Method of Research

Where are you from?

Establishes who the researcher is, and how they are connected to the people they will reciprocally conduct research with, and what research they belong to.

Who are you and whom are you related to? Relations

What are the answers you have been given in life? Purpose in Life

What motives connect you to the research and the people?

Establishes the relationship with those who will benefit from the research.

Who will the research help? The People

How do the people want to be helped? Relationship

Establishes the methods to be used for research and a long range circular research plan with the people.

Living, observing and sharing with the people to determine with them how the researcher's skills can best be utilized and what local ways of knowing and scientific methods they feel are best to employ. Methodologies

How is research conducted in harmony with the people's ways and in consideration of future generations? Methods

Establish the questions to the answers that the researcher was given in terms of the people they are helping.

How can the results work to help the people and others in terms of the people's view? Balance

The integrity of the findings are considered in terms of the people and their way of life. Harmony

Establish a circular research pattern with the people to continue to move toward harmony.

What new questions have been discovered from the research? Perhaps the researcher has been given the answers to these questions or other researchers have the answers in their life's purpose. How are the people involved in the next phase of research that is working toward harmony?

Transformation

Examination – Did the researcher establish their connection and relations to those being researched and did they work toward identifying their own life's purpose? Is the research in line with the purpose of the community? Are the researcher's motives genuine and do they have integrity with the people? Were the appropriate connections made with valued community members? Was the research conducted in relation to the people's ways and wishes? Does the research focus on bringing the people to harmony, as defined by them? Has a long range circular pattern of research been established and sanctioned by the people? Has transformation occurred for the community and the researcher? Is balance and spirit evident throughout the research process for both the researcher and the people?

This framework is not written in stone. Its purpose is to serve as an outline for others who are more knowledgeable, to build upon. The concepts seem foreign from a scientific paradigm, but truth can be gathered in many ways in our world. It is time to recognize those ways that are built upon respect and harmony.

MY EXPERIENCE THE DEPTH OF THE JOURNEY

I must go back to when I wrote about my research experience. When I offered Dr. Hampton a gift of tobacco and medicine and asked him to help me with my research I had no idea of the power of that action. Up to that time, I had learned to respect protocols, but I was unaware of the energy, divine action and responsibility that come with an offering. It gives me goose bumps to write this, but if I had known then what I understand and feel now about asking for knowledge in a traditional way I may not have asked. I am thankful for the knowledge, guidance and humbleness I received.

During the research experience I spoke about four lessons I learned, although there were many. The first was when I entered the class on day one and expected that Dr. Hampton would introduce me as a graduate student and somehow legitimize my being there as a non-Native researcher. This did not happen and it began my journey toward leaving the scientific way and moving toward a process way of doing research. Legitimization has to do with status and power. If I had been given a special role then I could have used it to legitimize my actions and I would have never have had to consider that my ways were not appropriate.

The second lesson came as I announced to the class that I would be organizing the themes around Indigenous research methodologies for them and that we would rework the ideas to reach consensus. I must have come across like a bull in a china shop. If I could go back and respond to myself at the time I would say, "How dare you think that you can reason and speak for us and tell us what we will do in this class!" Of course none of the students would have been so rude as to say such a thing, but I felt their communal response. My cultural armor kept me from figuring out exactly what it was that I did wrong. I was only

following my scientific research plan! The students tried at this point to let me know that the learning had to come from within me, but I could not hear them.

The third lesson involved the consent form. Their reluctance to give the forms back to me and later acknowledge their names on the data was a sure sign that they did not trust what I may do with their words. I totally agree with them and would be just as skeptical if a researcher who had established no relationship with me asked for my words. Now I understand the importance of knowing the researcher's intentions, knowing them as a person, and knowing if they practice having a compassionate and a good mind. I also know about the power of words and that I can't interpret other's words. I feel that when I finally asked for consent in a proper way through an offering, and told of my intentions, that I was given permission to use the words in the data of this work.

The final lesson was when my husband reminded me that, "You can't expect to gain knowledge without suffering". I now understand this to mean that I must come to a humble place and prepare for the responsibility of the knowledge. I was humbled during my research experience as I described. It was during the actual writing of this work that I learned about becoming prepared. Preparing myself for what will come with the release of this knowledge has been a lesson in prayer, humility and concentration. I have written for over two months straight every day all day while I am caring for my four children, one who is a toddler, and my mother who can't see. During this time my close friend's husband passed away in an accident. I am not relaying this for pity's sake, I want to say that I regained the strength that I had lost when I shut down. I learned how to pray each day for help and humble myself as I cried because I didn't think I could finish. I was shown how to focus by going within and how to hold that concentration and inner connection to the divine even when my life around me was chaos. I have a feeling that this preparation is going to have something to do with what is coming with the responsibility of this knowledge.

I am thankful for all of these lessons. It is hard to imagine being on the other side of that learning now, but I know that I have many lessons to come and

many on the same topics. The lessons around this research began well before I started it and will go on well after I say I am finished.

I have experienced much of the paradigm and many of the principles that I wrote about, during this research process. I was going to use this section to review those experiences but something tells me that those stories have already been told, so I will instead talk from the heart and see what comes.

There were a few times during the research when I felt as though I had been hit by lightning. One of those was when I related my earliest memory of balance to the concept of balanced research. I then understood that balance, or more accurately rebalance, was the way that we would deal with our global crisis. Every experience in my life then began to show me balance. Every book I read told the tale of balance and I saw how the Indigenous paradigm is based on balance and how the thinking, the culture and the teachings have the knowledge to rebalance the earth.

I was always fascinated by the concept of cellular memory that Lionel spoke about. When he told us that civilizations had evolved to a place where they understood balance and harmony in their cultures, in their relationship with the earth and in their knowledge of the mysteries of life - then I could see how we as humans are evolving toward that balance. The paradigm shifts then made sense and even the role of science in that evolution became evident and how it brought us out of balance. The knowledge of balance is within us, we just need to evolve to a point where we can access it.

I was also comforted with Lionel's distinction between traditions and culture. Traditions are something that relates to all of us as humans and though I believe the Indigenous paradigm holds the key to balance, with respect we can all join to rebalance our world. I looked back in my traditions and found that the Ukrainian people were very close to the earth and celebrated ceremonies of renewal throughout the year. These ceremonies were labeled as pagan with the coming of the Orthodox church, which is now an overwhelming part of the culture. I have met Ukrainian people who practice these ancient rituals, and their description of the meaning of these ceremonies is very close to what I

understand of the Indigenous paradigm. There are people living in the hills of Ukraine now who practice traditional ways of medicine. I would not describe my parents as religious, but they are deeply connected to their culture and the land.

My mother tells stories of my grandfather and his mother who often engaged in unorthodox ways. She said my grandfather, whom I never met, had a way of knowing on the land. He could sense weather and knew intuitively about animals. My mother tells the story of when she and her parents were digging a well. The three of them dug for weeks well into November and they were ready to give up. Then one night my grandfather had a dream, he told them he saw a deer and he knew that they would hit water soon. Sure enough, the next day after a few hours work they hit a strong stream. The traditions are something we are all connected to and an avenue for us to continue our evolution toward survival.

This research has been transforming for me. Perhaps the best way to describe this is the deeper understanding that I have for the interconnectedness of all of creation and the humbleness I feel in this knowing. It is easy to say these words and I have read them numerous times, but now I have some comprehension of how they feel. My heart has shifted and my mind is following. I sense that in the near future my heart will shift much more and I can only guess that it will occur as I try to explain what I have written.

THE END OF THE PATH IN SIGHT

I would hope that this work serves to prepare us for a coming shift in paradigms. I believe the shift is occurring and has been for years and we are like the teachers who are brought to a cultural camp in Alaska.

> We make no prior stipulations about what is to go on at the camp – no lectures, no seminars, none of the formal teaching we would normally do. Instead, we participate in whatever activities the Elders arrange in the camp. It isn't until about half-way through the week that teachers start recognizing that we are in a different realm. Until then they process the activities through the filters they bring with them, applying what they

> already know from previous outdoor 'camping' experiences to make sense out of the new circumstances. It's when they begin to notice the discrepancies between what they think is happening and what actually happens that they realize there is more going on than they initially recognized. It is at that point, when people start questioning their own presuppositions, that new insights begin to emerge.
>
> (Kawagley and Barnhardt, 1997, p. 6)

The new paradigm exists among us and when each of us becomes aware of the limits of our old paradigm we will make the shift with our hearts and see for the first time the new realm that surrounds us.

I believe that the recent acts of violence and terrorism are the culminating effects of centuries of being detached from the energies in nature. They are the pinnacle acts of the old paradigm that will bring us awareness and make us ready to understand a new view of reality.

Another purpose of this research is to find common ground on which we can all connect. We all come from traditions that are rooted in the interconnected web of existence. I would hope that balanced research would be like the Elder who always makes you feel welcome and cared for. It is a framework for all traditions.

This work is an ongoing process. I hope in the future to find more links to physics and the sciences that demonstrate the interconnections of all the realms of our universe. I also hope to begin to associate the traditions apparent in the cultures of the world to find common knowledge and understanding of connections to nature and all of life. Of course those who are knowledgeable of these traditions will need to fill in the rungs of the framework. This work won't be complete because it will continue to evolve through generations as humanity evolves toward wholeness.

There is no set framework for balanced research. Each person has their own purpose and knows which path is best for them so that they can reach their full potential in giving back to the good of all relations. Guidance comes from within each person and it is our responsibility to find our own balance, and in turn, work toward creating balance around us. As Lionel teaches, "Life is a ceremony – the way you live it is a ritual. If you live the wrong rituals, life will be

hard. Ceremonies are the way you come into balance with the physical body, mind and emotions to make knowledge. The balance of all three will give you spiritual energy." As we each walk our separate paths we will together rebalance the world.

The defense (sharing) of this work will take place within a ceremony and in the presence of an Elder. This knowledge is much greater than I can speak for and a ceremony includes ways of sharing that include all of the relations. It is hoped that the participants will have an opportunity to share in an experience that will shift their hearts so their minds can follow.

I find myself in a strange place as I complete this work. I have written so much about so many things and yet I do not know about any of it. I am certainly not a physicist and I cannot speak about traditional knowledge as I know very little about what I have gathered together. It is only a framework, not complete and very open to interpretation, as it should be. It is waiting for the meat like Lionel said, "Build a framework, and let those who know put on the meat". So, I will wait for those who know and when they come, I will quietly watch and listen intently to learn how I may help. Perhaps I can help to hang the meat.

I anticipate there will be those who are very set in their scientific paradigm who may come to challenge a new paradigm. It is difficult to stand within the paradigm of science and comprehend that science is but one tool to know reality and it is not reality itself. I wasn't sure how I would address these people since I know little of the science that may help them to understand. However, I did have a dream that gave me a response for them. During the dream, I was surrounded by those who were opposed to a shift in scientific ways and I calmly listened as they forcefully gave me their arguments. Then I was given a chance to speak and I said, "When your children and your grandchildren get sick from drinking the water, this way will be waiting for you when you are able to listen."

Here I am near the end of this path in my journey and I stop to reflect. I am glad I chose this path. It was certainly one of the steepest routes in my journey so far with many deep valleys and it took years and much energy to complete, but I feel I was living my purpose as I traveled.

I feel, like T.S. Eliot describes, that I am back at the same place where I began. I have made one more spiral in the process of life and enriched much of what I already knew, but now that I have arrived back at this spot, I can only wonder at all the knowledge I still do not understand and all the experiences I have not yet lived. I suppose that is what sends us on the next spiral path in our journey.

THE JOURNEY CONTINUES

I have had the opportunity to receive some very worthwhile feedback on this writing and I would like to make some comments.

This work reflects where I was in my thinking when I wrote it. I have moved through some interesting places in thought since then and I realize I have a long way to go in my understanding. I am at a very difficult point. I can see a very interrelated way of being, but I can't relate it to the academic world as I know it. I acknowledge the importance of having them connected, but in my thinking I feel that if I make the connections to what exists then I pull the thinking back to the current paradigm. So, I am choosing to let the thoughts stand on their own unconnected for the time being. If they stand alone, then those who can connect them to the present paradigm to move them forward can do that and those who can make a jump and perhaps begin to build a bridge between paradigms can do that.

Personally, I need to move away from the academics for awhile. I am ready to explore the interconnections I see in a quantum way of viewing society. I will expand on this view throughout these comments. As I explore, I will carry the knowledge of the academics with me. I continually read other's work in the framework of what I have set out in this writing. My intention and focus changes often. My view is broadening and I am fascinated by it. I have a feeling it won't take me very long to come back, but I need time to work on understanding how a different view of our same reality can evolve us as a species and I want to work on that bridge connecting the paradigms.

I do not want to be tied to this work and defend its every position because I have changed since I wrote it. I do not want to change areas to make them more palatable because I would rewrite it very differently now and I would not be able to complete the work because I have much exploring to do to bring it to the next phase. But I do want to explain some of my intentions in this writing even though they are changing.

I have spoken of the quantum way of viewing society and I need to explain this. I have come to a greater understanding of my intentions in this work after I completed the work. While reading Quantum Society: Mind, Physics, and a New Social Reality by Danah Zohar and Ian Marshall I began to understand the true essence of my thinking. I realize this does not follow the conventional way of completing a dissertation, but for me it fits a quantum process of thought. Zohar (1990) wrote Quantum Self in which she made the connection between the new physics and the vision of self as being deeply at one with fundamental reality and essentially defined through its relationship to others and to the natural world, and she and Marshall extended that thinking to society in Quantum Society.

To begin understanding quantum reality Zohar and Marshall explain that our present either/or thinking must make way for a new both/and kind of thinking.

> One of the revolutionary ideas thrown up by quantum reality is that light is *both* wavelike *and* particlelike *at the same time*. This is known as the 'wave/particle duality'. Neither aspect of the duality, is more primary or more real. The two complement each other and both are necessary to any full description of what light is (the Principle of Complementarity) – and yet we are always condemned to see only one at a time.
> We can design experiments in which light *behaves* like a series of waves, and others in which it *behaves* like a stream of particles. But we can never see its duality.
>
> (1994, p. 42)

Zohar Marshall suggest that elementary "bits" such as photons or electrons are in constant creative dialogue with their environment and with the

overall context of the whole experimental situation in which it is being measured. In other words, quantum reality shifts its nature according to its surroundings which is known as "contextualism." (1994, p. 43)

This is one of the points that makes me want to explore more. I need to look at research, whether quantitative or qualitative from a new perspective. Perhaps the entire notion of research would not exist as it does when a quantum reality is applied. Zohar's and Marshall's words speak of changing realities.

> Viewing reality itself as so many patterns of shifting, responsive potential is alien to our mechanistic intuitions and to the rigid social structures and attitudes derived from them. We have grown used to experiencing things and people in terms of fixed identities and predictable patterns of behavior – to taking them "at face value."
>
> (1994, p. 46)

Zohar's and Marshall's description of "superpositions" indicate multiple realities that exist simultaneously "on top of" one another. These superimpositions are the norm in the quantum realm. Each of these realities contain any number of possibilities, each of which are equally real and many of which are mutually contradictory. Their description of these realities in the social context run parallel with my intentions in my writing about balanced research as a methodology for all.

> Social reality, too, I believe, contains such a plethora of possibilities latent within it. And like their quantum equivalent, the social possibilities (lifestyles, cultures, languages, points of view, religious perspectives) are sometimes mutually contradictory. Perhaps if we could also discover some social equivalent of the wave function – the underlying common reality – we could find a unity in our differences, a positive grounding for our social pluralism. (1994, p. 50)

I believe the wave function that Zohar and Marshall refer to is similar to the traditions that Lionel spoke of. The traditions underlie our cultures and are common to all of us. I feel that a key to the discovery of these underlying

traditions can be found in the understanding of the relations of quantum systems.

Zohar and Marshall explain the fundamental differences between mechanistic and quantum relations.

> Newtonian atoms can't get inside one another; they are impenetrable. They can't relate internally. In our social perceptions, these impenetrable atoms become the individual 'units' of society whose necessarily external relations are mediated by power and influence, suspicion and mistrust... Quantum systems, with their potential to be both particles and waves, have a capacity to relate on both terms.
> When two quantum systems meet, their particle aspects tend to stay somewhat separate and maintain shades of their original identities, while their wave aspects merge, giving rise to an entirely new system that enfolds the originals. The two systems relate internally, they get inside each other and evolve together. The new system to which their overlapping gives rise now has its own particle and wave aspect, and its own new corporate identity. It is not reducible to the sum of its parts. We can't say, as in classical physics, that the new system is composed of *a* plus *b* plus the interactions between them. It is a new thing, an 'emergent reality'. In the physical world, such emergence is unique to quantum reality.
>
> (1994, p. 54)

The experience of intimate relationships may be an example of this quantum reality when we can feel our individuality while at the same time being connected to another person and creating a bond which is more than just the feelings of two individuals. Overlapping quantum systems can also apply to social systems and the creation of community which is another area that I hope to explore.

The aspect of quantum reality that fascinates me the most is the correlation between space and time that speaks of the interconnectedness that I recognize in my experience of an Indigenous paradigm. Zohar and Marshall explain these concepts.

> It is when we consider the implications of things like electrons and photons being smeared out all over space and time that we discover a

> kind of definitive relationship that robs the word *separate* of its usual sense and makes us rethink completely what we mean by parts and wholes.
> For if all potential 'things' are spread out infinitely in every direction, how do we speak of any distance between them, or conceive of any separateness? If all things and all moments touch each other at every point, the oneness of the overall system is of a kind hitherto unimagined. In describing such extreme interconnectedness, quantum physicists have revived the once ghostly notion of 'action at a distance,' in which one thing can be correlated with another instantaneously with no apparent exchange of force or signal between them. Known as 'nonlocality,' or correlation in the absence of any local forces, this somewhat eerie interconnectedness is one of the greatest conceptual challenges thrown up by quantum reality.
>
> (1994, p. 58)

It is in these words that I begin to find a description of the interconnectedness that I believe Elders are speaking of. Zohar and Marshall integrate their knowledge of these connections to consciousness, society and nature. They are able to clearly express what I attempted to. I can see the connections that exist between Zohar's and Marshall's work and my experience of the Indigenous way of being. It is from work like theirs that I hope to move forward as I explore.

Now I would like to make a few comments on the incompleteness of my work. First there is the problem of the binary view created in my writing where it seems that I am pitting the Western worldview against an Indigenous worldview. This seems to go against the relational way of being that I speak of during the work. This is true. It was not intentional, but I believe it comes about because I am not what I am talking about. A balanced paradigm is an ideal and something that I can strive towards. I am a product of the Western perspective and power struggles have formed my thoughts and been part of my experience.

Have you ever felt discrimination? That is a question that I always ask my adult students. Most people nod their heads, but I feel compelled to share my experience to let them know that there are degrees of discrimination. What I felt as a woman of Ukrainian heritage growing up, with some missed opportunities and some name calling, was nothing compared to the day I was

mistaken for a Native person. I went travelling with my Tehltan friends to Whitehorse. The treatment we received from the hotel, restaurant and store staff was a shock to my soul. I share the pain of these stories with my students. I tell them how my friends had no reaction but to walk away, since they had had years of this treatment. It was new to me to be treated as a non-person and to feel the powerlessness in that position. No matter what trick I pulled out of my bag of white privilege I had been labeled and nothing would change their opinion of me and give me back my power. It was a shocking experience that shifted my heart and moved my mind. I felt with my soul the incredible power of the Western perspective and what it feels like to stand on the outside looking in with no way to open the gates.

Is that experience part of me as I write? Very much so and I choose to keep it present. Should I unbias my tone because it makes others feel uncomfortable or defensive? Perhaps, since that would make me seem objective, professional and the better person. After all, I am the one who insists that this work is not about cultural struggles and power. For now, I need to hold that memory and not to forget it, until I can evolve to a place where I am balanced and can act in a way that is beyond discrimination.

I have had more powerful and meaningful experiences since. They have been within ceremonies and within everyday life. I have learned from someone who saw reality in a completely different way than I, but respected my view. It is through that learning that my perspective broadened to a place where I could see balance and how it could help us all. I saw the strength of the person sharing the knowledge and how difficult it was to bridge the gap to help me understand. It would have been much easier for him to stay in his world and not fight that incredible power of my Western point of view just to help me understand that there is more than one reality. I believe that I will be a better person when I use my strength and my experiences to help others understand balance. I do not believe I will help others by continuing the ways of discrimination.

It has been suggested that this work ignores the gains made by disenfranchised Westerners such as feminists, Black insurgent intellectuals, Queer theorists and others who have added to the modernist Western view point. My intention is to have those from the margins, those in the middle and those who were never allowed to enter the Western world view try on a quantum set of glasses so that we can all see a new reality that perhaps is void of margins. I think what we may find is that the Indigenous people of the world have always been wearing these glasses and they may be able to help us get used to the new vision.

I want to repeat that I am not trying to define an Indigenous Research Paradigm, but a balanced one. I am sure I have led the reader astray at times. I can not speak from an Indigenous point of view. I certainly can not speak for the numerous nations of Indigenous people around the world, but I can speak from my experience. I see a connection between my experience of an Indigenous paradigm and the new physics. I used many direct quotes of Indigenous authors and scholars purposely to have their words describe concepts that I felt made connections to the new physics. Confusion occurs when I speak of balanced research because it is my visionsof conducting research in a way that operates differently from a Western worldview. It is not an Indigenous Research paradigm. It is informed from my experiences of understanding an Indigenous view of reality. It may seem that this work is about an Indigenous Research Methodology, but I have come to learn that it is not. It is about human evolution and about making the shift in our thinking that will help us survive on this planet. I believe that Indigenous knowledge holds a key to the balance that is required for survival. I do not have those answers, but hope to explore them.

There is a distinct lack of discussion of qualitative research in this work and what does exist has been quite rightly described as simplistic. I revisited work that was suggested to me that included spirituality and altered consciousness, but I could not find any work that spoke in the terms of quantum reality as I have described above. The articles that I read seemed to rework the

author's experience of their spirituality into the terms that would be accepted by current research standards. Somehow this lost the experience of the interconnectedness since general terms are used.

I have not been fair in this work because I have spoken of an Indigenous paradigm and presented a framework for balanced research within the context of the current research paradigm and I have not authenticated my writing in a way that is acceptable to that paradigm. I acknowledge that, and my best response is that I am caught. Research in the new paradigm is not defined. This work has turned out to be about possibilities. Perhaps I should not have been so bold as to set out an outline of balanced research, but it was part of the research experience and I feel that it was given to me to share. It is one of those unconnected pieces that I spoke of earlier in this chapter.

There are Indigenous scholars that have utilized qualitative research methods, but I cannot find an example of how those methods allowed the wave aspect of quantum reality (such as the understanding of the role of energies and alternative realms) to surface and be discussed. I see some evidence hidden in narratives, stories and even the expression of language, but I do not see a framework that allows deeper understanding. Perhaps this is why an Indigenous Research Methodology is having difficulty emerging in the current paradigm.

A final comment on beliefs. I was not clear until now how to define the epistemology present in this work even though it is a pervading factor. This work is a walk between paradigms. I am trying to describe something that I have only briefly experienced, but that I believe in. The question of cosmology is interesting. With the quantum reality it does not matter if our beginnings began with the big bang or if we were created from dust, both can hold true at the same time. I can hold both creation stories in my head at the same time and feel very comfortable with either. I can learn from the creation stories of turtle island and have them work simultaneously with the big bang or counter to it.

My ontology is a quantum reality with a particle and wave existing at the same time, but I am open to more depth as I live longer and hopefully become wiser. The epistemology is the confusion in this work. I want it to be:

1 – holistic – so that I understand that my actions and the actions of those around me can be felt throughout the world.
2 – Between the individualistic and collective extremes.
3 – Inclusive of many realities.
4 – Flexible with less hierarchy – more responsive to change.
5 - Emergent from the bottom up.
6 - Environmentally conscious.
7 – Spiritual.
8 – Indialogue with science – to move from one paradigm to the next.

I live and have my experience in the current paradigm of particles and an either/or reality and it is still very much of who I am. As I have learned, both realities can exist at the same time.

The methodology in this work is still to come. I thought I knew where I was coming from, but I have much exploring to do before I can answer that question.

Quantum reality is an avenue to attain the balance in the world that I envision. Seeing and feeling ourselves in each person will change how we interact in society. That same connection with nature will change our relationship with the earth.

It is this connection that also exists with institutions that will bring me back to the university. As Zohar and Marshall note, "However we describe institutions, they are not separate from us. They have a reality of their own, but that reality emerges from our collective activity as individuals." (1994, p. 215)

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Appendix A

DATA ANALYSIS

NON-INDIGENOUS

EH- Something happened in 1492 that changed all of our lives. A certain gentlemen talked to Isabella in Spain about funding a research project. Nebreeha was a specialist in the study of language. He proposed to write the grammar and the dictionary for the Spanish language to standardize the language of the empire.

The printing press was the last technological advancement to shape education. People were writing all kinds of books in all languages in 1492. They wrote them in the vernacular (the language that no one taught them, but they learned at home). Before the press the books were written in Latin and only the elite had access to them. The elite of the day could not read all of the languages or books. Nebreeha sold the king and queen on the idea of making the Castellian language the official language and requiring all books to be published in standard Spanish. This created a monolingual empire with a schooled standard language that was considered the only recognized one to be able to progress in society.

In the 1600's came Descartes and Bacon and the birth of science, as we know it. The early impulse of science was the exact opposite of Nebreeha's. He wanted to advance language as an authoritarian thought control for the empire. The control of knowledge and thought was to be returned to the elite. Whereas in science you had people (like da Vinci) who were looking at practical issues such as how to build things or how to make formulas for soap. Anyone who knew something could write a book. There was a time were practical knowledge was circulating among all people with no schooling or centralized control of thought. Early empiricists and later Bacon figured out that not all the knowledge was locked up with Aristotle, and that knowledge existed within nature and regular people. Early scientists were going to nature and experiential sources to find knowledge.

The shift to scientific research and empirical knowledge was a shift to nature and the ability to find out knowledge for one self. It was a good idea that was consistent with the early scientists' culture and traditions. The view of nature before the eve of the scientific revolution, was that humans and other beings were part of the cosmos and a participating consciousness was practiced. With the scientific revolution came Descartes who felt that you could use reason, but that one had to go to nature for specifics. He felt that scientists needed to be masters and possessors of nature and that there must be a mind and body split. Francis Bacon felt that nature needed to be vexed in order to extract its secrets. He believed that research needed to be done as if by machinery. The mind was not to take its own course, but it was to act as a machine.

Science became either pure science with the motive of knowledge for its own sake or applied science, which had some application. The null hypothesis proposes that statements only hold meaning if there is no way to disprove them. The views of Bacon and Descartes have gone too far, perhaps the views are just stages in human development, but they have had huge repercussions for society.

PH -Non-Indigenous research is being inside and trying to look out while Indigenous research is being outside and trying to look in.

ILL EFFECTS OF RESEARCH

LR -The university has put us in stone in a bad way. Our society views us by the way the university shaped us. For example, in my community the men, women and children had every orifice of their body measured. Also, skulls were filled with sand and measured to determine intelligence.

We need to re-map and re-word the views of our cultures. We need to begin to remake our knowledge system and legitimize it. How do we re-read the text? Research has been touched by colonization. It needs to be destroyed so it doesn't influence the next generation or we continue to live a bad way.

How are the texts re-read without taking the dominant ways in our mind set? A very difficult task. How do we return the academic knowledge back to the communities? My community is in the process of reclamation. I go back to the communities and try to unravel the knowledge in the thesis. The knowledge is still ours, but it has to be reshaped. We need to take the good parts from the knowledge.

JT -I have a personal conflict. I don't want to be called a researcher. It is a very negative word in my community and I don't want to call myself that. (I have changed my views after the course and over the summer. As I reflect I think it could be a very positive thing. Although, I feel a great sense of responsibility to "do things right".)

EH- Research is disreputable for many of us.

SF -I read an article on adoptive children that was very negative toward Native people. It stated there was a pattern of dysfunction in one out of four children.

EH -There is a lot of negative research. There seems to be a tendency to look at the negative because of the educational process - critical thinking. We look at what is wrong and what is the flaw. It is like that in graduate work. In a lot of the research the flaw is Native people.

La Framboise and Plaque reviewed the literature and found that most research on Native people is negative.

In terms of the ideas list we generated about the proper foundation for research, if we violate the ones that we connect with we will feel uncomfortable.

But on the other hand if we wait to live up to all of them, we may never do research. Research is a human production -we aren't perfect.

PHILOSOPHY - EPISTEMOLOGY

EH -The philosophy of a people is embedded in their language. In English (re) (search) is to search again. This demonstrates how knowledge is formed. Words give clues to the philosophy of research and research methods. If you ask an Elder to explain research methodologies in their own language it will show the philosophy of the people.

Each Indigenous language will have a different approach to Indigenous Research Methodologies like every department in the university has a different slant on the university.

EH -I worked with Lionel Kinunnwa in spirit camps and one day he told me what an old man had told him, "Our culture is killing us - we have to get back to our traditions." Lionel told me that our culture is just the way we live. It is in our brains. It is what we have learned since birth and it changes everyday. Traditions are in every cell of our bodies. It is what we have learned since we have been two leggeds. It is not about race or gender but an awareness of the inner connection of all things.

My friend has a methodology that is made up of part of three Native cultures and part European culture. It could be a pan-Indian model. It looks good to me with respect in the middle, but what about tradition?

I was building a deck and my two sons were there. There were cottonwood trees around and the fluffy seeds were floating down. My son caught one and brought it to me. We looked for the seed and it was not big. My son said, "that tiny seed knows how to be a cottonwood tree?" The tree is like Lionel's description of tradition - it is in every cell of our bodies.

Are there some real human basics? A human research methodology is speaking of all cultures. How deep in the onion do we have to go to find an Indigenous research methodology? It would be a culturally based research methodology based on commonalties amongst different Native groups such as a common experience with empire. How deep would we have to go to get to an Indigenous research methodology that is for all?

Lionel said that we came from a finished society like the Mayan civilization and the Greek civilization where everything was worked out and people knew how to relate to others. We are now in a time where we are inventing and experimenting and humans haven't yet found out how to put together a multicultural nation or society.

A traditional research method, traditional societies and traditional cultures may coincide with that basic set of what it is to be human worked out over a long period of time. Do we have to go back to the basic cellular level of how to relate to each other to find the research methodology and what it is based on? We are now trying to do research in this society with our community and dealing with all life's issues and the well being of children etc. We want a research

methodology that does more good than harm and is a positive experience and maybe even a healing one.

SF- In regards to cellular knowledge, when I hear the sound of the drum the sound and feeling is different for my non-Native husband and I. Did I hear it in the womb?

CD -Research needs to be done in an integrated way examining two worldviews because I am in both worlds. Caring, sharing and honesty are important. An Elder told me that spirituality is not in a book. It is inside you - it is a fire within you.

KS -The ability to speak an Aboriginal language has centered me and helped me figure out who I am. When I hear others talk about difficulties that there are in education I know that language can help students know themselves, and know where they come from and help them when they move to an urban centre.

CD- Language is important in our community. As a researcher I have a bond right off because I use my own language.

AN -My main hope is to maintain the respect I have for my community and for myself. Secondly, that the students (children) will benefit from my research.

EH -I went out for breakfast with my Grandfather and another grad student. My Grandfather talked about the proper steps to knowledge, intuition, and spirit. He was talking about values. The other grad student replied, "ya, but you can't teach that." My professor in my class who was an expert on planning had said the same thing, that knowledge cannot be taught. My Grandfather's reply was, "Well, I wasted my life then."

There may be some very important learning outside the academic line that the university doesn't generally teach. Maybe it is something you have to learn on your own. Many experts who come into the communities are short termers and they become part of the problem instead of the solution. There is a piece that is absolutely essential to being balanced and a good teacher. It can't be taught, but it is essential. A study asked students for a description of a good teacher and far less than 5% of the words had anything to do with the lesson plans. They were characteristic words like fairness and friendly. The elements not taught at the university.

It makes me think that there is a huge reservoir of knowledge that the Indigenous people hold on how to teach these things that were lost in residential schools. It is about values. We have made a false ideal of a little sub-set of some piece of knowledge.

In terms of a value base, the most important part of research is that it be consistent with the best values.

CD- We are sometimes embarrassed to use the values that we know. The value of humility that the Elder from up north demonstrated at the conference was amazing. Sometimes others don't see the value of the values. We worked on a proposal for a daycare based on values and we couldn't get funding.

EH -I think we learned a set of survival values that are short-term and hopefully we get back to the more long-term values.

JT- Values of humanity are not just for Indigenous people. Different cultures have similar values, but they are valued differently.

EH- Value statements are sometimes ideals that we shoot for. For example, respect is a term that is always used, but there isn't much around. When we are out of tune with values we feel uncomfortable and choose to do it anyway.

EH- It would help to clarify an Indigenous research methodology if we tried to talk about the value base. The Chickasaws don't own the value base. They are dear to some values, but they don't own them. The values I wish I lived by and those I do live by may not be the same. We say mine sometimes, but it actually owns us. It is not my research because it calls me and it chooses me.

EH- In defining a foundation we look at values. These values are:

1) Connection with nature - there is either a respect and connection with nature or trying to hide from or escape it.
2) Research is relationships - research is relating and connecting and the quality of these relationships.

EH- Some say Chickasaw culture is dead. For some it is being protective and for others it is their belief. This saddened me.

I believe culture is all the things that I didn't learn. Where did culture come from in the first place? One place it came from was the Great Spirit, nature experience and the Elders and ancestors. I felt cheered up because I realized that all of that is still here. The source of the culture is still here. It is not important to preserve your traditions, it is important to allow it to preserve you. I learned the more I practiced what I knew the more I learned. I am far from coming to the end of that learning. To the extent that I follow the traditional practices I survive and I learn more. They preserve me. That is how it has been for me.

Culture and tradition in my family is something more than what we did or what we talked about.

MD -I thank the creator for us being together to think and strategize for the 7th generation. Conducting interviews with Elders, the PhD's of our communities, I have been given information. We are not to look at the failure of the government because we know that that is true. We have to take it to the next level and take

action. Not just as education, but as an understanding and interaction of the world.

I look at my own community where I came from and talking with Elders, and about the knowledge and using the circle to teach. I see education is formal and informal.

We can impact change by using the level of consciousness of people for a peaceful world and inner peace. How do we encourage people to practice inner peace? I look at my own inward journey and it also reflects an outer journey. How can this be actualized for others? We know about the suffering, so how can we address structural change on a micro-level and take it to a macro-level? The responsibility has to go back to the individual. If the individual is empowered first, then we can make changes in the society.

We have all been placed here for a purpose, that is a natural law stated by the Elders.

AN -It is about the inner journey. We are beginning to open doors. We have to go back to our inner thinking and take supplies and leave behind the rest and go on with that. My Indianess, respect, is inside me.

MD – What about being intuitive? Your belief has to come from internally. Your research is an intuitive belief. What is constructive reality? We have a multi-dimensional way of looking at the world with many factors. How do we walk our path and journey to come to a common link? Our communities share their knowledge so we can find meaning in our life. What path do we take to access the information that we want to know about? How should the knowledge be shared so the young people can benefit from it?

I am committed to learning about myself and my own potential so I can impact the young people so they can find their path in life.

RL -When we share personal experiences it will be a healing process and there will be healing for myself, the person and the reader who will need to have acceptance.

EH -Research is possibly a sacred activity given that life is sacred. We only have so much time, space and energy so if we are going to put blood sweat and tears into it, then I wouldn't know why it wouldn't be sacred.

If the point is to learn something for some reason, then I exist as I am and am fixed up a particular way to do certain things. To do this, it seems to work better if I let others influence me, but not too much. As long as I don't violate the best that I know of who I am, then I am able to follow my path. Research needs to be consistent with who I am - the more consistent the better.

In the area of being useful and of service, if I do the best that I know, then that is my excuse. I might as well be of service and do something. The only thing that makes it research is to document it.

EH - There is one thing we can be absolutely sure of, and that is that our ancestors prayed for us.

ETHICS

PH - I have a concern with others' words becoming your own because you are the researcher.

EH -As methodologies shift to consider research participants as co-creators of meaning then anonymity becomes different. The words of the Native people should be recognized.

Cynthia Chatam did a study in Indigenous communities and found that some people wanted to remain anonymous because of politics and others wanted to be recognized. There seems to be no rules, it depends on the context and the person and they should be given the option.

AN -There is no such thing as absolute anonymity. On the reserve if you interview people others will find out because everyone talks.

PH- Our cultures say the word is powerful. If the words are anonymous then the people's words are attributed to me and I am taking their power. Crediting people with their words is empowering to the people and our communities. But as Cynthia Chatam says, the people in the communities may need to be protected, so it is up to the people we are gathering information from.

LR -Indigenous people must be given a voice in research. There must be a legitimization of the Indigenous voice and experience. Research must be controlled, managed and edited by Indigenous people. The participants must be in every stage of the research and it must match their experience. Cultures cannot be viewed from afar .The voices, their experience, their reality and their understandings are to be legitimated. It is important that research reflects their experience, their struggles against racism, their non-verbal ways and their entire worldview.

AN -How much information am I going to share? I don't want to discredit my people. I will have to do judgement calls because I want it to be positive, not negative.

EH -There was a black psychologist who said that there was some data that he would never publish because it would be misused.

PH- There is the question of ownership of knowledge.

AN -What about when Elders share knowledge just for you? They say something just for you to hear, but they have signed a consent form?

EH- What is public and what is privileged knowledge? For non-Indigenous researchers there is a view that publication and broadcasting knowledge is O.K. Ones job as a researcher is to publish and get the information out to others.

PH -As an Indigenous person, I can only speak for me or maybe for some of the members of my family or maybe even for some Hawaiians, but never for all Hawaiians or all of my family.

LR -Ownership includes intellectual property and cultural ownership. In Australia the researcher is only allowed in communities with a signed contract between the university, the researcher and the community. The researcher is required to be in for the long haul. The community does not just want recommendations. There must at least be a strategy put in place so that there is accountability back to the community.

AN -A double blind will not work with Aboriginal people. Research needs to be face to face to get the honesty, to read the feelings and to get the emotions.

EH -It should be like that for all people. Argyris says that research without the input of those being researched is doomed to failure because it will only work in a totalitarian society.

EH -What do we do with bias? We can try to minimize it as qualitative research does by having the researcher talk about their biases.

JT- It doesn't apply to Aboriginal people because they pursue a topic that is relevant to them, their community and their experiences.

GP- I think about bias and I wonder what I am going to leave out of my research. That is also a bias.

EH- Let the reader of the research know about who you are. Argyris states that there are methodologies that aren't rigorous. These methodologies have an unswerving devotion to accuracy, to free informed choice for the people involved in the research, and to internal commitment in that they are personally committed to the research.

EH -Bias is probably not a useful term or concept when we say everyone and all research is biased. It isn't useful and it has negative connotations. What would be a neutral term or a positive way to talk about bias?

What does it mean?

BL -It is a frame of reference situated by where you have come from, where you are at and by ones lack of awareness.

AN -Would opinion take over for bias?

PH -The need to explain the bias grew from the fact that researchers were supposed to be objective. Instead, you could talk about your background, tell who you are and where you come from. Also, how you look at the world and how you form questions etc.

EH- To state your bias at the beginning is an attempt at a counterbalance to having to be objective. There are still a lot of people at university who feel that they are objective, but that is probably not true. In the physical sciences it is relatively easy to maintain the objective view, but in human experience it is subjective. To view others is subjective.

GP -To say that I always have my bias or frame of reference is to say that things won't change, but that bias isn't permanent.

BL -You could state your frame of reference at the beginning and then restate your frame of reference and visit it at the end. A person would be more aware after the research.

GP -You may come to a different understanding at the end.

EH -What if our bias is accurate results? What if we prefer that it comes out one way, but it really comes out a different way? Take the statement - high levels of traditionality presupposes success. There is some evidence of this in the literature, but what if this is a researcher's preference?

MD- As an independent researcher you are restricted because of the political and social issues of the day. You have to tailor your research so that it will be accepted. Within our own institution we are facing the white way (the people who govern). You have to work within the boundaries of the institution to get a degree or to get funding. You have to change your way of thinking.

EH -Political stance is another way to say bias.

GP -To include Indigenous knowledge in the university there are different views. There is the multicultural positive view and there is accepting the knowledge because there are a large number of Indigenous people coming and then economics plays a role.

EH -The context, whether it is the university or community, also has its own biases.

AN -There is a limit to subjectivity because of the politics of the institution.

EH- Bias may reflect a person's values. But, somebody else's values may look like a bias to others. A person's own values are not a bias.

AN -Bias doesn't coincide with values because biases change everyday, but values don't.

EH -The reader may have their own biases and they may disqualify the whole thing.

AN -As the researcher we get biases back from the research participants too.

GP -The bias of a researcher could also be because of their genes.

EH -Like Lackoff says, the way we are put together decides some biases.

CD -I have a problem with the attachment /detachment issue because I am one of them. I may not have to deal with it. I know in our community in the past with talking circles that we have remained friends after the sharing.

Why do I have to have validity for the pain of what others have shared. If I am the writer and the believer and it has purpose for me, then that is valid.

JT -For validity I would like to set up my committee in my own community when I go back home. This committee will be for support and guidance because I will meet opposition. People are comfortable and will not want to change. My own people will be able to validate my work more than the committee at the University of Alberta.

AN -Non-interference is hard to get around. If you interview someone you are intruding. It is difficult because the people I talk to may not see the bigger picture. It is scary to do interviews in their environment.

EH- There are levels of intrusiveness. For me, my wife says I ask questions differently. I say, "I was wondering about...and why," and I hope they say something. There may be less intrusive ways of asking questions.

JT - It can also be interpreted as being non-aggressive or indirect.

AN- What about the honesty in it?

EH- For me it is more honest. When I tell someone of what I am wondering and why it lets them choose to speak. If I was very pushy I would say, "Can you tell me about...please",

PH -I had an assignment to do that was an ethnographic interview. The first time I went to interview the person, I instead took her to the hospital. The next time, I ran her sons to school. The third time as soon as I sat down she started and answered all my questions without me saying anything. In my culture you cannot ask questions to an Elder. You can ask questions by not asking questions if you know how.

EH -It is important to know what fits at the time. Some Elders say "ask me questions". Maybe culture is not a straightjacket.

SF -We went to an Elder's lodge and the lady put down the tobacco because she did not want to be considered an Elder. When we shut off the tape-recorder she rambled on.

LR- There is personal integrity to consider. Russell Bishop is a Maori researcher who practices collaborative story telling. He is concerned with whose integrity is intact when all is said and done.

Who legitimizes the research process? The refereed journals are not done by Indigenous people. The legitimizing will always be from a white perspective because there is no one refereeing who understands an Indigenous perspective.

There is also political integrity to consider. Who should have the right to legitimize some knowledge? The community needs to review the research.

JT - We need to encourage each other to publish or there won't be an impact that others can see.

EH -We are a judge and jury as we try to be a researcher. Often we are judging before we do it. We have to have the freedom to live and let the critics do their job. We have been through such a conditioning process that we actually have more freedom than we use.

THE RESEARCHER

PH- In Hawaiian the term "imi na'auao" means to seek enlightenment or wisdom, or one who seeks enlightenment or wisdom. "Imi na'auao" refers to both the research and the researcher. There is no separation of the body of knowledge being researched and the researcher in the use of the Hawaiian term.

EH -What is a researcher in the old human tradition - at the basic human level?

CLASS- a searcher of knowledge, an explorer, a story teller, a scout, quester (on a vision quest), a dreamer, on a journey, a traveler, a leader, a student, an educator- someone who is getting knowledge, a seeker, a visionary, a listener, a spiritualist (having a gift)

MD -In the past there were seven roles to maintain balance in the community. For example, there was the crier who pleaded to the Creator for the people, the healer who could heal with medicines and the one who spoke in tongues. All of these people had the responsibility to maintain balance and to help their people. Their knowledge could be passed down to others through the pipe or songs so balance could be maintained through the generations.

EH -Researchers think of themselves as experts too often. That is antithetical to what researchers should be. The researcher should be a learner like the list above.

In the European tradition the base of knowledge is power whereas in other perspectives may be beauty or balance.

CD- I go back to my language to understand the concept of the researcher. I understand that I am trying to know about inner balance and that I don't ever have knowing above others because if I do, I betray my role to the people. I always have to be the learner.

EH- I am trying to let the traditions percolate with the now notion of the researcher so it can be consistent for my inner balance and the now.

EH -Respect should be paid to the character of the researcher. Is there such a thing as neutral or value free knowledge? Is there such a thing as just the facts?

Elders know that motive comes before method, techniques, or knowledge. You are taught the knowledge, information and procedures etc. when you are ready for it or when someone thought you were ready for it.

The thought that someone would be given knowledge when the giver had no sense of who the person was would be insane.

AN -Much of the research that has been done with Native people has been done that way.

JT - Many of the words we came up with the other day were about character.

GP- If the connection in character is not there it creates the insanity. There is a certain way that it is supposed to be. The roles aren't there in the majority system and the students are taught just little bits of character and not the whole. The education system is part of the insanity because it does not let the connection to character occur for the kids. A few little streams are connected, but it is just a Band-Aid that adds to the insanity.

What about having the seven balancing ways that are part of Native culture being the dominant part of education and integrating all the other new knowledge into it? The character would be the base and the kids would be balanced.

MD- The character of the researcher is vital. A lot of this is searching for the connection because of the imbalance of what we do. We are always searching to get in balance.

EH -Indian standards are very high and it is hard to live up to them. As humans we expect lots of ourselves and our communities.

EH - Lionel Kinunnwa says that within each person is the child we are and still are, the teenager we are and still are, the adult we will always be and the Elder that we would like to be. When I look at my own life and the wisdom and the compassion of the Elder that I want to be, I think that maybe I should start showing some of that to myself.

EH -In the old European view there was the transformation of the researcher that was the same idea that was in the old traditions. The idea of the transformation of the self is coming back into the literature as a goal of the researcher.

The extent to which research is transforming can be seen in the following:

1) Personal -the relationship between research and who we are as individuals
   -our feeling, emotions and motivations
   -the usefulness, hopes and goals for the work
2) Language -philosophy of knowledge and learning embedded in the language
3) The character of the researcher matters
4) Answer based research - personal connection to starting place
   -looking for an interpretation of the answer

EH -The methodology should be put in the background not between the researcher and the research topic. It seems that we are healing the separation or alienation between the research topic and the researcher.

This is a very different view than Bacon held. He said we can't respect our own opinions because we are too close and the further away we are the clearer we can see. There was a lack of trust for the process and in the researcher and the research. By refusing to engage and distancing ourselves from ourselves and the topic it was believed our knowledge would be more accurate or secure.

Richard Katz says that the research gets more valuable and more interesting the more the researcher is willing to be vulnerable.

We might be going to the idea that the more engaged we are with our research topic the more in-depth our knowledge becomes. Also, that by engaging with the topic and being involved with the topic our knowledge of the topic will be deeper, more useful and more accurate.

EH- If the researcher practices the virtue of humility it keeps reminding us that we can always fool ourselves. Also, that we need to do research with others rather than on others and that we need to do research with ourselves rather than on ourselves. Finally, that research is a relationship.

EH -If research is about relationships and relating to others in human sciences and education, then we have expectations of how to relate to others. There was and still is a power differential between the researcher and the participant. That differential takes in the role of the researcher and we have our own view of that role.

There seems to be a reach here for the negotiation of expectations. The consent form is an attempt to do boundary maintenance and stop the power struggles. Negotiation presupposes the boundary maintenance.

Which relationship would be most appropriate as an Indigenous researcher? Think about it, is it respect?

ABOUT A METHODOLOGY

EH- Nature is our greatest teacher.

KS -I don't think we can get in touch with nature. Can we? We are sitting in a classroom and this may not be the right environment to do it. I would think differently if we were sitting by a fire.

EH -There is a chance that what we come up with will make sense in this type of environment because this is where it was created.

Do we extend the definition of research or do we come up with a new word? We are sitting in this class and we are working on a degree and we are trying to relate to the system. Are we going to revolutionize it or help it evolve? We won't leave it the same.

What we are talking about is an Indigenous academic methodology. At its best it is going to be shaped by Indigenous traditions, culture and languages. But, we are dealing with it in English.

There are Indigenous ways of knowing and traditional ways of learning. We have the responsibility to work individually with the best of what we know. That academic research methodology will not stretch far enough to cover Indigenous ways of knowing. That is best done in our own ways.

GP- There are still ways to get in touch with nature's energy. We are all part of it and we are in our research.

EH- The most important part of research is that it is consistent with the best values.

PH- Indigenous research can be described in ho'okupu -a sacred offering. It is not something you pick up, but something that you give that relates to all.

MD -Indigenous research methodology has to be individual empowerment. It invokes changes in ourselves first to be able to impact change in society.

RT- There isn't one way. We are all going to have our individual methodology. I don't feel I have to follow the stringent guidelines. I can adapt it and make the methods my own.

EH- In Linda Tuhiwai Smith's book, Decolonizing Methodologies: Research and Indigenous Peoples, she has a decolonizing approach to methodologies. Her Indigenous research agenda has self-determination at the middle of her work because she is looking at decolonizing methodologies. She also lists 25 research projects. Does your research fit into one of these or do you have to add to the list?

CD- I would add discovering self because I have to research myself and there will be change and transformation and lots of questions.

PH- I would add honouring. Honouring the ancestors and the strength of those who have gone before us.

KS -I would add reclaiming and responsibility.

EH -The methodology should be put in the background not between the researcher and the research topic. Following a method in a book is a very different way of conducting research than trying to describe what we are doing.

Research is a celebration of ignorance. We are ignorant of what we will find in the bend around the trail. We can also research the known and then the unknown comes in how we are going to communicate it.

GP -We can respect others by walking in their shoes. Then we can get out of our head and understand from their point of view.

EH -The method (honesty, respect, etc.) becomes who we are. It becomes an expression of who we are and the best that we can do. The method becomes secondary because what we are actually doing in the situation is being real.

JT- To use some of the words that we generated as part of an Indigenous methodology I would need authorization from someone.

EH -The interview schedule I started with was embarrassing. I used jargon from a theory in the questions.

KS -What was the response?

EH -They were academic colleagues and they were compassionate and kind and they tried to answer, but the questions were getting in the way. They were able to respond when they talked about what they were doing and why. I tossed the questions and used four as a reference point.

BL- Is there a name for doing things that way?

EH -It was kind of like grounded theory .I heard from many graduate students who changed their methodology mid-stream.

AN -Is what we are doing part of the method? We think of what others have done and what we might do and we use it as a background. Then if we are engaged and it makes sense and we are being honest etc., then the route we take will be based on what is right at the time. We are natural, not machines and when we write it is also real and natural. We write what happened.

EH -We thought -we acted with integrity -then we found out what we thought or something new. Research is about communicating something, not about what we found. We explain, not find. In the explanation we will be humble, honest, respectful etc. and we may find something else. It is important to be humble enough to gain knowledge.

EH -Research is a celebration of ignorance and occasionally a transformation of it. The only way we can transform ignorance is by respecting what we know or what we think we know.

JT – We have our own biases, our own expectations and our own feelings.

EH -We need to honour them as what we know. We need them too. When my father walks he carries his weight on his back foot. He makes sure that it is solid in front of him before he places his front foot down. We need to fully honour and accept our expectations, pains and fears etc., then we can feel around with the front foot and see where we are going.

CD- How much will the institution allow me to write? There is much heart-felt knowledge in my words, but can the university accept it? This is a reality.

EH -There is a risk, that is why we need the good solid back foot because sometimes you will step on a snake. It doesn't have to cost. You can read others' work in a respectful way and you can refer to these people. And there are some things you may not be able to do, some lines you can't cross.

LR -There are some research methodologies that exist that are useful. We don't have to go back to what was here prior to dreaming (Australian). We can massage this work to suit our needs. There are new ways of studying research

from the participant's view. We can invite all types of people to help out the struggle -feminism, positivism, critical theory etc.

Marry all the different theories and construct your own and leave something for the next generation.

LR -There is a problem in that those at the academy feel that Indigenous people just need to be added to the academy and then stir. Aren't we creating the same thing? How do we decolonize the academy? One of our roles as Indigenous people is to decolonize the institutions.

Take the good from western research that works well with Indigenous ways. The research must benefit people. Researchers have to put their cards on the table and say what is good for research and for the people.

Put the research out there. The only way to rearrange the minds is to put out literature and that which articulates our point of view. It doesn't have to be perfect. There are three main areas to the research process that works well with Indigenous people:

1 -problematize the area in relation to colonization
2 -we have to quote each other to legitimize methods/methodology and epistemology/axiomology
3 -going in to do data collection and working with people -conducting the research process

JT- The picture is much bigger now for research. Like Rigney's idea of race as a construct for oppression. I and other Indigenous researchers need to reclaim our rightful place in society. I have to take a political stance and it is very big and more than just a research methodology.

PH- We don't have the time or energy to disprove others' research, just state ours and go on. It is important not to get sucked up into that big hole.

EH- Our research project is situated within the large world and all the connections. We can't spell all the connections, but some are important to us and who we are and our experience. Those we pay attention to.

EH -Maybe the method should be done first and then it should be explained through the methodology. Humans seem to know what to do -trust the process.

AN- Is the process different from method and methodologies?

EH -Process is the conscious and the unconscious and everything that is going on whether we are aware of it or not. It is what I trust. Where it all comes from- life itself. What the Creator gave us to work with -a spiritual thing as well as a day to day ordinary thing.

Method is the steps I plan to follow if it continues to make sense as I do it or the method I intend to follow. Here is what I intended to do, but it changed as I went.

Methodology is where the method comes from, a general approach and why it makes sense to do it that way.

Process does affect methodology because that is where it comes from. It is good to trust natural processes. If I work in a good way I will get there as I should. It is the same processes that created life and my people and their language. I can trust that.

EH -There is a course, which talks about from oral tradition to written text, but I believe that now it has moved to hypertext.

Lionel Kinunnwa compiled a dictionary of key words and terms that hold a language. He says that you can know a people from those words. He demonstrates these words in a non-linear text like a hypertext format or a web. He was making the jump from oral text to hypertext to make sense of the information he wanted to disseminate.

In some ways the hypertext may be more amenable to the oral than the written.

Hypertext is a non-linear textual form that is richer than printed text and richer than an illustrated text.

PH -The technology is finally catching up to the traditions.

EH -The oral tradition has been for thousands of years. We are set up to do that at the cellular level since we live in a multimedia context with audio, visual, and tactile as part of our everyday experience.

EH -We live more than we know -we know more than we speak -and we speak more than we write. And now we can put on the Internet more than we can write.

PH -Is the connection between the oral, written and hypertext in a line or is it in a circle?

EH -What is your research question? To focus on the question presupposes a particular type of logic that goes from question to answer. The difference between life and school is that life gives you the test first and then the lesson.

How does life work? We get the answer and then the question. Little children observe a bird flying and then they ask, "Why do birds fly?"

There are a set of answers at the foundation of the research and we try to invent the questions. What is the answer that is the basis for your research?

AN -What does it mean to your research if your answer comes out totally different than the outcomes?

JT - Wouldn't that be having expectations and bias if we have the knowledge first?

EH – There is research where the answer is the hidden agenda. We should start with the answer as the explicit and then work toward the question. The answer is there, state it clearly and then work toward it.

The hope from the Great Spirit is that we get the questions right.

PH - It would be a more honest research in a more honest approach.

PURPOSE -MOTIVE AND METHOD

EH -There is a link between the motive and the method or the topic for research. Walter McLelleck says that all impersonal questions arise from personal reasons. If I am aware of the motive for my topic, then it changes my method.

I have seen it with the graduate students that I work with. When they become aware for the motivation for the interest in their topic then it changes how they do their method.

One graduate student I worked with came to me because he wanted to work with students in the detention room. He wanted to work with them and offer them counseling. He wasn't sure of the method and his ideas seemed removed from the students. I asked him about his school experience and he got in touch with the feelings that he felt when he was in detention. His experience still had a lot of emotion for him. He assumed that those kids in detention felt like he did. Once he knew how he felt then he could look at the children as individuals. A switch flipped in him and he was then internally motivated. He did extras for the kids and they got the benefits from the process of him doing research. He also spent quality time with them and he placed value on them and their words so they had a positive experience.

EH -In my own work I went back to my earliest memory related to the topic and I remember sitting in school as a young child looking in a book that had pictures of Indians riding horses in loin cloths. I knew then that there was something very wrong with the education system. My work on redefining Indian education is an extension of that experience. Memory is a connection to our purpose.
EH- Coyote's story that was re-written by Joanne Archibald speaks to me about my purpose and my research. I was picking the easier question to research that I thought I could get answers to instead of the one that I was meant to answer. But the one I was meant to answer was way off in the distance and it would take me a lifetime to answer. But I found I couldn't find the answer to the easier question because I had to go off in the distance to find my answer anyway.

CD -This has started me on a totally new journey. Now I want to do a narrative of my educational journey. Possibly I will include other's journeys in mine. As I've listened I've learned that everyone has a purpose and we are all gifted.

MD- Your belief has to come from internally. Your research is an intuitive belief.

SF –Research is a calling. When I was a teenager I was on the wrong path. Native studies helped me with my identity. I am happy in education. We have a purpose – I see that. I am honoured and proud and I think that I am on the right course with my research.

PURPOSE -USEFULNESS

EH -Reinharz says that during the research process the topic changes, the method changes and the researcher changes. And she argues that it distorts the research if this is not realized. She also says that if all aspects of the research are allowed to change then the research produces knowledge for something. Whereas if the researcher is held to being rational and avoiding the expression of emotions then the research produces knowledge about something.

EH- The researcher's motives could change the methods of the research and also the application or the hopes for its usefulness could change the methods. What are the factors that predict if research will be useful or used? There was some research in around 1982 in the Creation, Diffusion and Utilization journal that found some factors. First, the primary decision-makers were involved in all stages of the research project. Next, the people who would be using the results were involved in the research and these people felt some ownership of the process.

EH -The method can change according to the hopes for usefulness that the researcher holds for the research. Also, the process of the research itself may vary if there is value (usefulness) in the research for the participants.

What are the hopes in regards to the use of your research?

KS -I feared that my master's thesis would be sitting on the shelf not being useful. I looked at my own school experience, my fear of failure and alienation and how we tried to fit into the mainstream while at the same time being pulled by the responsibilities of our community. I wanted to share it with the students that I work with so they could deal with the barriers as they went along. Also, I wanted to share it with the administration of the university so they would see how difficult it is for the Aboriginal students to navigate at university .I didn't get a response, but I think that is where the changes come from.

EH -Did the students find that it was useful?

KS- They felt it was useful and they recognized things.

AN -I want to look at the home and cultural background and its connection to education. I have already selected the families. There is too much time spent on trying to change the child to fit the teacher. I want that stopped so that more time can be spent with academics. I hope to bring about extended awareness. Teachers already know that they are different but they need the awareness so

they don't spend energy trying to make the child fit them. The teacher should come in fitting the needs of the children.

RT- How are selected Aboriginal women choosing to reject colonization? I want to look at it from the post-secondary perspective. I know my motive and I want it to be for young Aboriginal women. How would they use it? It could be like a self-help book so it could be accessible, but that seems to cheapen the research. Maybe it can be a compilation of stories. I don't want to sound arrogant, but I am in the research because I am here.

PH -I want to help my own community. Before I was a public defender and I was trying to keep Hawaiians out of jail, but that was a losing battle. Colonization has had an effect on our community and we are at the lower end of the totem pole. My research is to empower and strengthen families by looking at those who have made it.

My wife took a pre-school program into the communities. The parents and caregivers had to be there too, so she taught parents skills to take back home. I want to put back into the community everything that has been taken away and put the good back into families.

DG -There is no use working on something that is useful if it is going to be shelved.

SF -I am interested in researching out of culture adoptions. I haven't seen a lot of literature on Native children who have been adopted out of their culture. I hope it will be used as an educational tool. I would also like to add to the literature so it can be used by people who want to know some of the things the children are going through.

EH -I am amazed at how much that we do is the same. I hope it is a developmental thing. I want to look at how we get all the knowledge together from all of the rooms. Every community wants to have their own post-secondary system.

METAPHORS

EH- Lackoff says that human thought is built on top of basic level concepts like a metaphor.

PH -The metaphor of a net is elegantly simple, but can go very deep. In Hawaii we would use the image of a net to do research rather than a machine. As we discover things we get connected to our environment. If it is broken you have to find a means to restore and reconnect it. It catches and holds things.

JT -I was thinking about what it would be like to look at research with traditional people in a camp. A metaphor for my people would be the bush trails. If you look down on trails it would come together as a web does. It is difficult finding your

way on these trails and I admire how people know them so well. They don't get lost and I always had faith in my mother and her ability to know the rabbit trails. The people don't let the trails get over used and they make new trails when it is needed. This is good for me because it helps me find my own power in my journey. It is up to me to break my own way. There is no set path.

AN -I shared in my journal the metaphor of a teepee. The poles were the principles of our culture, the pegs were the strength and the teepee itself was the knowledge.

EH -I had some thoughts about the basic level concepts that we shared about metaphors for research like path, circle, net, plains, prairies, bush and island. It made me think of the three environments (biospheres) or ways of life that the creator has given us.

JT -The northern lights to the Dene' are alive. I see it as a metaphor for knowledge and the connection between our ancestors and our research.

A HUMAN RESEARCH METHODOLOGY

EH -There may be a fundamental problem with research. A new version of research will make it empowering, life affirming and good for all people.

EH -It is not so much defining Indigenous research as redefining research. There is no Indigenous world -there is no non-Indigenous world, there is just the Creator's world, which has room for everyone. Room for each one of us in our individuality and our people's ways.

EH -A human research methodology is about one mega-culture and it is speaking of all cultures.

EH -We want a research methodology that does more good than harm. One that is a positive experience and maybe even a healing one.

PH -I want to put back into the community everything that has been taken away and put the good back into families.

EH- A research methodology is about your story. What is your story? Not what is positive or negative, just what is your journey?

JT –We can add to the list of problems or we can add to the solutions. (My hope is that I will add to the solutions by doing the "groundwork", and determining our own strategies and solutions. I will be taking a place in our Aboriginal community which is struggling for self-determination and self-sufficiency.)

EH- Do we have to go back to the basic cellular level of how to relate to each other to find a research methodology and what it is based on?

EH -It is not about the difference between or the opposition of Indigenous research methodologies and non-Indigenous research methods. Both have to be done. It is about human research methodology that rings true to the basic values.

PH- Sharing makes Indigenous research.

EH- There are values of humanity that are not just for Indigenous people. There are similar values that are valued differently in different cultures.

EH- Humility -I want to know the way it is, if there is such a thing. Maybe it is part of the old traditions that come from humanity rather than culture.

JT -Maybe it is about integrity. There is a traditional method for acquiring knowledge and that is what I want to find.

MD -Education is about human awakening.

EH- There is not just one way to be an Indian and there is also not just one way to be non-Indian. Knowledge is evolutionary. It evolves over time and methodologies are cumulative. The knowledge the researcher creates is also cumulative.

KS- There is a yearning for the knowledge for everyone, non-Indigenous and Indigenous, to help our children succeed and to have a good future for our people.

EH -The Creator needs all of us. In Black Elk Speaks, Black Elk says that if it were just about me and one story, I wouldn't tell it. Stories are about life and experience. The values go beyond the individual stories and are valuable for all of us.

EH- Did Indigenous people invent research? If they had, what would it look like?

CLASS- Sharing, caring, useful, participating, interconnected, inner-connections, responsibility, respectful, honorable, reciprocal, healing, circular, traditional, experience, environmental, holistic, stories, spirit, peaceful, acceptance, cultural, kindness, honesty, nature, listening, integrity, humility, nurturing, language, introspective, relationship to the land, engaged (part of process), involved, sacred, emotions (feelings), consensus, human, just, humor, reflexive, balance.

It is not limited in its ways of validating. It is not limited in its ways of gathering knowledge.

PH- Indigenous research is ho'okupu -a sacred offering. Not something you pickup, but something you give. It relates to all.

EH -I was thinking about research methodologies and how to choose a method. I have been working on making a bow during the evenings. The bow will be totally different if I follow the grain of the wood or if I don't. If I don't, it will break.

I was using an old drawknife and thought that I was going to use it because it was best. But, I ended up using a new little knife because I could feel the grain better. I switched methodologies right in the middle because it was better for the job.

I tried to ignore the grain because there were no knots, but it didn't work. I learned that I had to obey the natural characteristics of the wood. Just like you will have to obey the natural characteristics of what you are working on for your research. I really wanted to charge straight ahead and work, but I had to obey the grain. I hoped and wished, but it didn't happen.

STUDENT INTRODUCTIONS

Peter Kauhola Hanohano is a doctoral student in the First Nations Education Program at the University of Alberta. He is originally from Punalu'u on the island of O'ahu, State of Hawaii. He and his wife are the parents of six children, the oldest of whom is now married and the mother of their first grandchild. Peter's middle name, Kauhola, refers to the time or season of new beginning -and participating in this research has been for him a renewal and new beginning.

Peter's comments are found after the initials PH.

Appendix B

In my own language I appeal to the Grandfathers to bless the words we are using today and everyday so that these words are offered as good medicine to heal rather than to wound. What I am about to say is intended to help us Indigenous people reflect on our imbalanced relationship with those who see themselves as the developed world. Taking this time to think and to talk to each other about the nature of that relationship may stimulate us to figure out how to use our traditions to keep helping make changes.

How I came to this interpretation is based on a non-ordinary event I experienced and from a vision which appeared to me at about the same time. I don't know if I would have come to that understanding with only one of these events happening to me. There does seem to be a relationship between the two.

This talk is coming to an understanding of our world from a perspective other than from what most scientists would consider 'pure' science because the inquiry begins at the point of an unexplainable experience. Could it be that the method of inquiry used in this process resembles in some way how ancient Indigenous Americans came to acquire their knowledge? What I want to share with you at this time is my description of the two events. One involved an overwhelming sensation (unlike any other sensation or emotion I had experienced) in response to natural surroundings. The other event was a vision containing a message to help me understand our condition as Aboriginal peoples. Receiving this gift obligated me to share it with others. That is why I offered to speak here at this gathering.

Several months ago my spouse, Peggy, and I left our home and place of work at the Saskatchewan Indian Federated College in Regina, Canada, to attend a conference on qualitative research. The conference was held at the University of Georgia at Athens, Georgia in February of 1992 on the east coast of the United States. While we were at the conference we decided to take advantage of the warmer climate and take a few moments to wander about the beautiful campus.

We were enjoying the natural setting of the university when I was suddenly, unexplainably overwhelmed with a rush of emotion. The feeling is

hard to describe but it was not unlike being welcomed there on that piece of foreign land! The feeling was so strong I could feel it all over my body and into the depth of my inner being and it seemed to be coming at me from all over. I felt warmth and love with touches of sadness and melancholy. I couldn't understand what was happening. I told Peggy what I was experiencing. We gazed at the grass and the beautiful old trees before returning to the conference where the strange feeling subsided somewhat as we got back into the activities at the sessions.

Later that night I sat bolt upright from my sleep with the following vision etched forever in my memory. I saw a deprived emaciated person near the point of starvation barely able to make his way across a very desolate area. His skin was dehydrated and rough from being out in this severe lifeless place. Although he had very little vitality, he managed to stay alive because of disciplined rationing of the provisions he had brought along. To conserve energy he used the weight of his upper body to lean forward to provide the momentum to keep himself moving. As he dragged his feet to keep himself upright, he moved forward peering into the distance. Suddenly he saw a great change in the landscape. Before him now was lively abundance; an endless variety of fruits and vegetables and nuts and other edible vegetation. Well-nourished peoples in this glorious place were enjoying the bounty of their surroundings and were living happily with each other. The emaciated man quickened his pace by leaning more into his steps. He burst into the abundance and began grabbing everything within his reach so as to fill the void he had felt for so long. In his persistent rush to gather as much as he could for himself he kept bumping into and brushing aside the residents of this place. He interfered with their balance. The more he took for himself, and the more he pushed others aside in order to do so, the more off-balanced they became. Throughout the next few days the imagery kept returning and I continued to wonder what it all meant.

On our return flight to Canada awaking from a nap I recalled a similar experience several years before when I came to realize how our ancestors are present with us even though they have been physically dead for a long time. I

was walking about in a grove of trees out on the Canadian prairies and thinking about how my ancestors might have lived in such surroundings for eons. Then it occurred to me that since our ancestors have lived in the Americas for many centuries they would have lived and died all over the land. Some of them had probably even died right there on that particular spot where I was standing - I was on sacred ground! Their physical remains had long since gone back to nature the soil provided nourishment for the current crop of vegetation. So in a sense my ancestors were not only in the soil but they were also in the grass and in the trees. Since the birds, insects and animals of the area nourished themselves from the vegetation my ancestors were in them too! So if they were there I had to honor and to respect them. Remembering that experience gave me the answer to why I had felt so strongly welcomed in Georgia. Indigenous Americans were happy to welcome one of their own again!

When we got back to Regina and the Federated college, I eagerly told Eber Hampton, the president of the college, about our experience. As he listened to my story he kept looking at me in a strange way. When I finished recounting the incident he began to tell me about a similar experience while he was Director of the American Indian Program at Harvard University.

It seems that during that time he made a trip to Washington D.C.. On the way home he stopped the car in a quiet valley for a brief rest from the drive. He got out to walk around. He said that he felt like praying in that unspoiled piece of nature. As he prayed it seemed like there were old people from the past all around him. They seemed glad and happy to see him.

Since there was a small construction site in the valley he asked the spirits about it. He says they told him they liked the people and what they were doing there.

A few days later, while he was sitting in his office at Harvard, someone knocked on the door. Standing at the door was an elderly man. As this stranger introduced himself he also revealed the nature of his quest. He was part of a group which wanted to build a meditation center in New York. His group had realized that they couldn't go ahead with the construction of the building without

in some way acknowledging the special relationship between Indigenous Indians and the earth on which the group wanted to build. So they had begun searching for an Indigenous person to ask them for a blessing to go ahead with the project Someone had given them Eber's name. Eber asked this old man where it was they were wanting to build their meditation center. The old man took out a map of the area and indicated the spot.

The location was the same place where Eber had stopped and prayed. Eber told the old man what happened to him in that place and that the Creator had already sent the spirit to say they liked what was being done there. The old man understood and together they thanked the Great Spirit.

I was heartened to discover that someone I respected as an academic elder understood my experience. More was to come though! The subsequent experiences and perceptions of the following days were, I suppose, filtered by the vision, perhaps at a subconscious level. My preoccupation with wanting to understand the meaning of the vision affected my whole being.

I cannot recall which event happened next or which followed but I will tell them in the following sequence. I was eager to relate my experience to Lionel Kinunnwa, a Lakota-speaking Minnecujo, who was working on short term contract for the college. He listened very intently to my story. When I was finished he told me that I had had what they refer to in Lakota as *wanbli iwan yanka pi.* It roughly translates into English as "They are as watching Eagles." The Eagle referred to the way older people gain a telescopic perspective of time/life/energy. A person attaining this level of perception gains a different concept of life including the spiritual structure of life. This energy was always there, even before we became two-leggeds. (Perhaps that is what binds molecular structures.)

We humans emerged from the spirit-only-time and we can still connect to that time under the right circumstances. A person doesn't need to go vision questing. When everything is in the right place it will happen if the person is attuned to it. Lionel likened it to a parking lot full of cars all lined up except one. When it too becomes lined up, a person can see through all the windows past

the cars and see whatever was previously blocked out by the irregularly placed car. It seems that only older people report having these visionary experiences because younger people are apparently usually too preoccupied with other interests. According to Lionel those people who have such experiences but won't talk about them are practicing self-oppression.

One of the physical characteristics of being in this state is walking on the ground like an eagle's accentuated sway from side to side as it is forced to lift it's feet to avoid dragging it's long talons. That is why they also refer to it as reaching the age of walking with the Eagles. What he said next truly surprised me. "You have had a ten thousand year old experience", he told me. "A long time ago most of the northern part of the American continent was covered with ice. Your ancestors moved ahead of the ice southward. For generations they lived and died in that area. It was only after the great ice fields melted that they began to move northwards again. Since most of the human body is composed of water, when we die that moisture returns to the atmosphere. In essence the atmosphere is sacred as it is made up of the moisture of our ancestors. Since generations of your ancestors have been supplying that area with life-giving moisture, their presence has become part of the total ecosystem".

"There is also wisdom and knowledge stored and contained within our physical selves, within each cell of every part of us. Although our usual consciousness doesn't make use of that resource, it is nevertheless there. During periods of non-ordinary consciousness we become aware of some small parts of it." So what Lionel was telling me was that something during my walk-about on that campus in Georgia triggered ancient memories contained within the biological cells of my bones, my marrow, my skin cells, passed on for generations upon generations by my ancestors. And that there was communication between what I was genetically made up of and whatever other life form my ancestors took on when they were present at that site.

As Lionel was talking I couldn't help recalling what I had read about a

psychologist experimenting with earthworms. The researcher had hooked up a series of tiny electric wires crisscrossing in a sandbox. A tiny-trickle of electric current capable of shocking the earthworms without killing them was controlled by a switch. The researcher fed these worms inside that box for a period of time until they associated the shock with the bright light which was turned on simultaneously. When the electric shock was disconnected and the light was turned on the conditioned worms still flinched in anticipation of the shock. The passage of time didn't alter the response. Next, the researcher took all of the treated worms and ground them up and fed them to the new batch of worms in the same box. What happened next was truly amazing. When the bright light was turned on (without the electric current in the tiny wires) the new batch of worms flinched in anticipation just like the worms they had digested! The conditioning had been transmitted in the biological process. I don't know if the researcher continued the experiment with another batch of worms, so I am not able to share with you how long the information would be passed from one group of worms to the next.

As mind boggling as this is, I understood more about why I felt so welcome there in Georgia! It wasn't only because I was an Indigenous American, it was also because I had direct roots there.

I now had to turn to trying to understand the sadness I felt mixed in with the feeling of being welcome. I can't recall if it was after I had discussions with Eber and with Lionel that I began to make the connection to the vision or if it was before the discussions, or even between the two.

The vision of the destitute person just barely managing to keep walking in the desolate land had to do with the sadness I felt mixed in with the feeling of honored reception. What I came to realize was that it was due to the way Indigenous Americans vacated Georgia and most of the Atlantic seacoast.

When the first Europeans arrived in this part of North America they realized how much more desirable the land along the coast was compared with the interior. This awareness began the push to disinherit and to dispossess the original inhabitants culminating with U.S. president Andrew Jackson's decision

to have the Indigenous Americans forcibly relocated to the less fertile lands of this interior. This is remembered as the Trail of Tears march, during which more Americans died than during the Vietnam war. So that is why my ancestors were both happy to see me there but sad at the same time. They were glad to see one of their own return once more to the ancestral lands now populated by strangers who ungraciously and with malice were responsible for so much of their misery.

From the vision, I was able to interpret European history in America. The vision presented an understanding of why the newcomers to America acted the way they did. I am not sure how helpful this understanding will be to us when we are trying to recover our collective imbalance but it certainly has helped me. In attempting to regain our natural balance we are faced with countering the effects of hundreds of years of historical events in Europe.

I remembered from the European History courses I had taken in high school and in university that before the so-called "age of discovery", the European countries had for centuries been at war with each other. They needed control of agricultural production to feed their increasing city populations which was a new development in Europe at that time. Every country in Europe has been involved in reshaping its political boundaries many times over. Because of increasing city populations, agricultural production could not meet demands. Ruling classes only worsened the problem by skimming the cream of the crop for their own. The average person during this time was indeed in a deprived condition for the power structure made certain that there was always just barely enough food to keep the masses working.

When it seemed certain that Europe would become overpopulated with all the problems associated with that phenomenon, adventurers to the new land came back with stories of bountiful riches for their taking. So began the outward migration of people from Europe to the rest of the world. Because these people had experienced deprivation for generations they could not control their over-reaction. They attempted to fill the void which existed in themselves. Their history drove them to secure for their homelands as much of the land and its

resources as they could muster, so that their fellow citizens at home would never again have to experience deprivation. Even after many years, peoples of European descent are still acting as if they are in a deprived condition. Are their experiences of centuries before contained in their genetic makeup and is this what they are still responding to? Perhaps this *is* so. The person indigenous to Europe has been in this "New World" for only a short period of time and has not given himself the time needed to develop a harmonious response to the environment. Perhaps in time he too will consider the land sacred.

In their eagerness to claim everything for their own, they use Indigenous peoples, and have caught them off guard and pushed them off balance.

After centuries of this relationship we are still off-balance because they are off-balance. We need to regain our balance. In order to accomplish that we need to help them regain their balance. If we are the only ones who become balanced they will continue to place pressure on us to hold them up. So we need to teach them to stand on their own and once again learn to walk in balance and in harmony with all peoples of the world.